VOL. 178 No. 5 AMERICAN MAY, 1953

JUL -7 1953

Gas Journal

SOUTHERN GAS ASSOCIATION ISSUE

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Positive Control
24 HOURS A DAY!

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guarantee unvarying delivery pressures

Reynolds Low Pressure Regulators guarantee unvarying delivery pressures, sharp response to changing load demands and positive control of low pressure gas flow even though inlet pressure and volume vary.

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ANDERSON, INDIANA, U.S.A.

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OF WEIGHT, BULK AND SAFETY PROBLEMS IN SPACE HEATING

THE *New* ROCKWELL NO. 1 *Aluminum Gas Meter*

WEIGHS ONLY 22 LB,
MAXIMUM CAPACITY 275 C F H
at (½" pressure drop with 0.60 sp. gr. gas)

When heating with gas you need meters having adequate capacity plus safety. Both these desirable features are found in the *new* Rockwell No. 1 aluminum meter. Capacity is ample to handle any house heating job. And the pressure cast aluminum body and cover have a high degree of resistance to impact from external sources. Sudden surges of internal pressure won't cause this meter to burst or even deform. The light weight of this meter (only 22 lb compared to 45 lb for a comparable iron meter) saves in shipping, handling and setting. It is available with offset swivels for 10 light meter bar installation.

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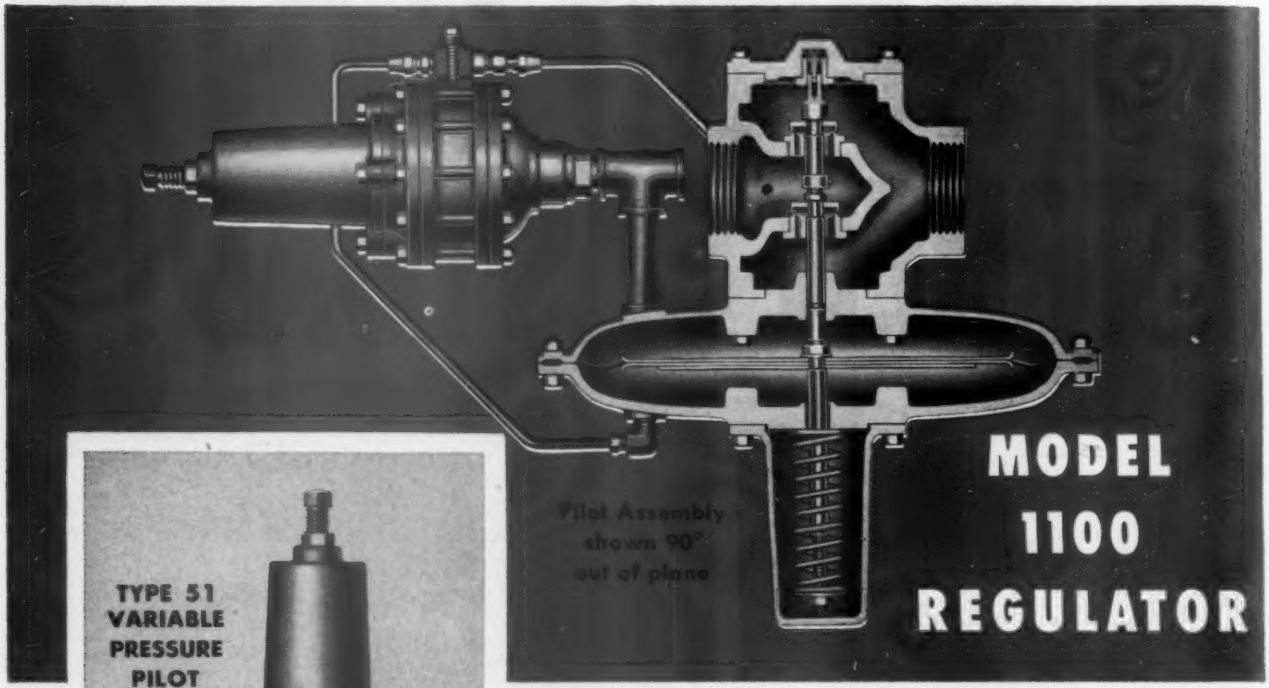

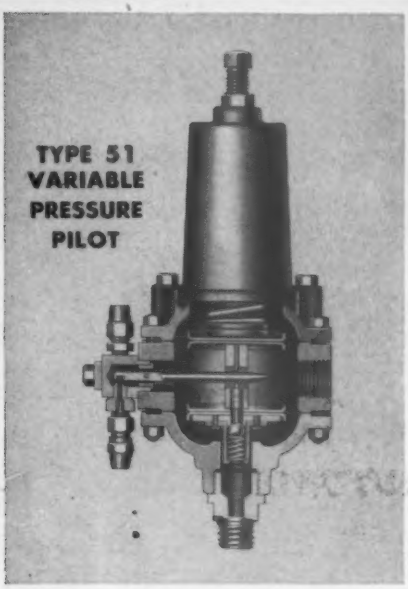

• the heart of the MODEL 1100 assembly, insuring precisely accurate control over the complete flow range. • Unitized construction—valve lever and orifice as a unit are removed from the outside, without disturbing balance of assembly. The likely trouble spot—the orifice—is placed outside where you can get at it quickly—no internal tubes to clog. • Twin diaphragms remove as a unit. • Internal relief unit—guards against overpressure. • Spring unit—remove three screws to change springs. • Built for service. • Used for accuracy.

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On its 45th Anniversary

JUL -7 1953

AMERICAN Gas Journal
ESTABLISHED 1859

SOUTHERN GAS ASSOCIATION ISSUE

VOLUME 178 MAY 1953 NUMBER 5

This month...

With this May issue, AMERICAN GAS JOURNAL rounds out four publication years under its present management. Not without a full measure of trials, we look back across those years and derive pardonable satisfaction such as we find in this issue, the largest we have published. We start our fifth year with our own kind of indestructible confidence which looks toward larger and more useful issues for the gas industry, which we are ever-mindful that we serve.

. . .

It is both a pleasure and an honor to indicate that this is our Southern Gas Association Issue. It is the first time we have devoted practically an entire issue to an association. Our high regard for SGA is based upon the strong allegiance of its members to the Association, as well as the vigor and accomplishments of their continuing efforts.

. . .

One hundred fifty-one years of Southern gas industry history have been capably capsulated by Robert R. Suttle, managing director of Southern Gas Association, in the 5 pages starting on page 29. Tracing the progressive growth of the industry in The South—from *a* street lamp lit in Richmond, 1802, through the years of the War Between the States, to the names of men and companies that will be recalled and recognized—is a notable accomplishment and contribution that we are proud to present.

. . .

One of the most important of gas industry considerations is the subject of this month's chapter of *American Gas Fundamentals* (Page 47). Lieutenant General Ernest O. Thompson, the author, is chairman of The Texas Railroad Commission and has long experience in dealing with Natural Gas Conservation, the title of this chapter. We commend it to all students of *Fundamentals* for a more comprehensive understanding of the necessity and advantages of state conservation laws and practices.

Contents

Editorial: Dead Center 23
Guest Editorial: Let Not Pride in Accomplishment Lead to a Fall—Charles B. Gamble 24
New Orleans: An Old Gay City on The River 25
Southern Gas Association's 45th Annual Convention Stresses Sales Considerations 26
Chronology of the Southern Gas Industry—Robert R. Suttle 29
Gourmets Approve Commercial Cooking in New Orleans ... Where They All Cook With Gas—John D. Haverkamp 34
United Gas Tells Gulf South Story to Industry of Nation .. 36
Construction Throughout The South Includes Vast Gas Sales Potentials 38
Control of Dust in Distribution Systems—John H. Glamser. 42
Vigilance is Watchword of Lenders and Borrowers As Interest Continues Climb—John F. Falvey 44
Federal Power Commission 46
American Gas Fundamentals: Natural Gas Conservation —Ernest O. Thompson 47
Utility Gas Service in The South Surveyed by AGA 51
Manufacture of Gas Industry Equipment and Appliances A Growing Southern Activity 53
News of the Gas Industry 54
New Equipment 56
New Bulletins 60
Gas Industry Calendar 66

AMERICAN GAS MERCHANDISING 67
1953 Gas Appliance Merchandising—Houston Natural Style—L. Proctor Thomas 69
New TV Package Show Launched 72
Chattanooga Gas Co. Rolls Appliance Showroom to the Customer's Door 75
New Gas Appliance Bulletins 77
New Gas Appliances 78
Index to Advertisers 80

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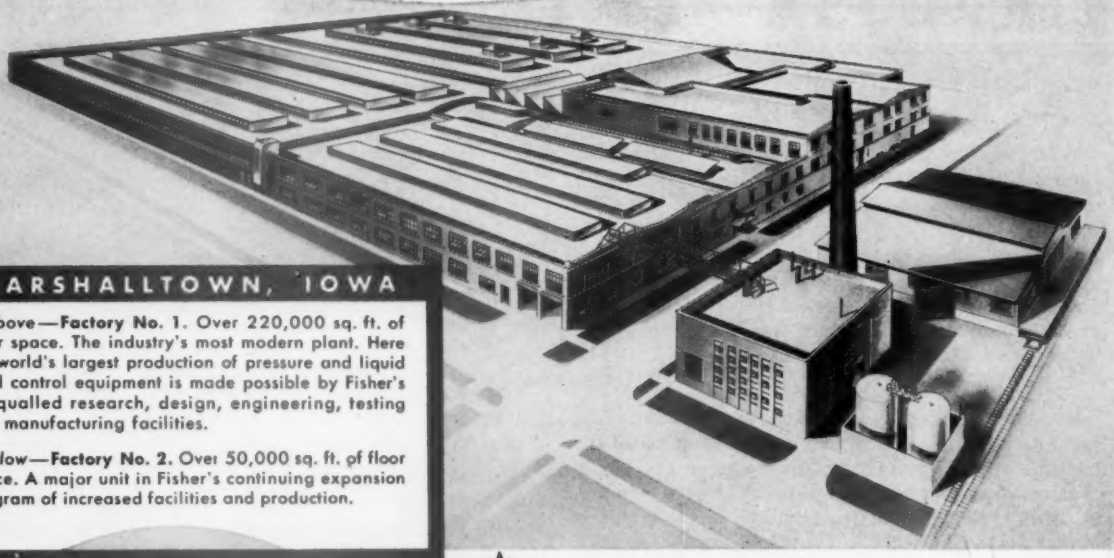

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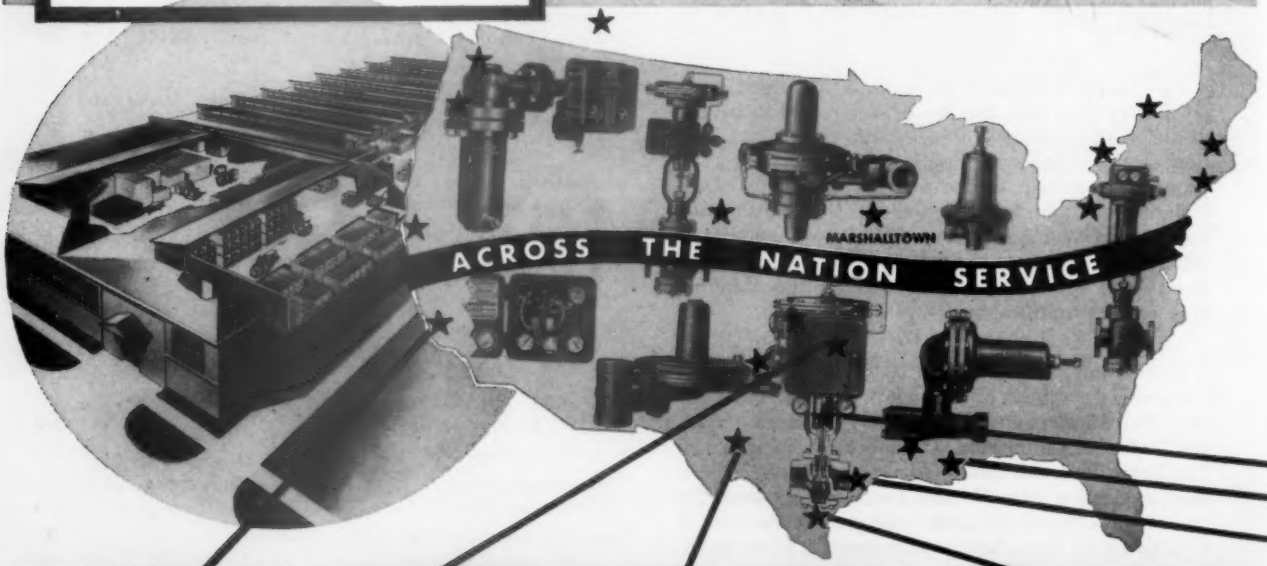

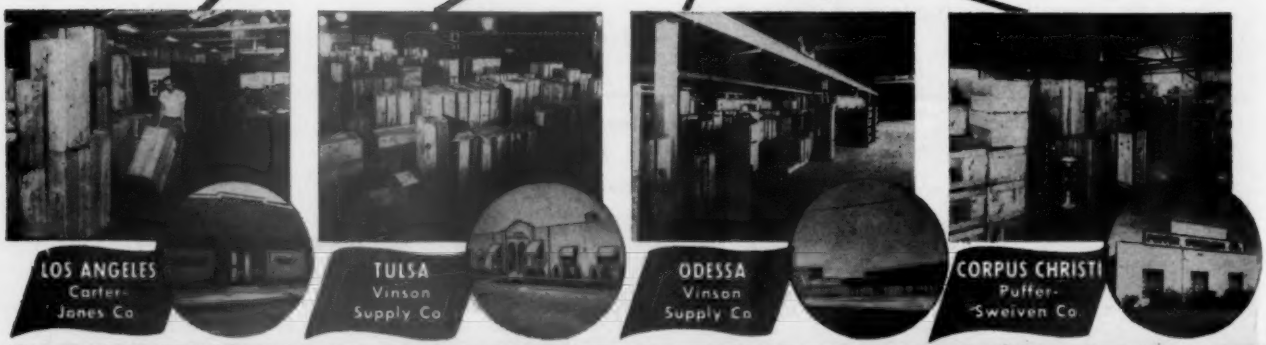

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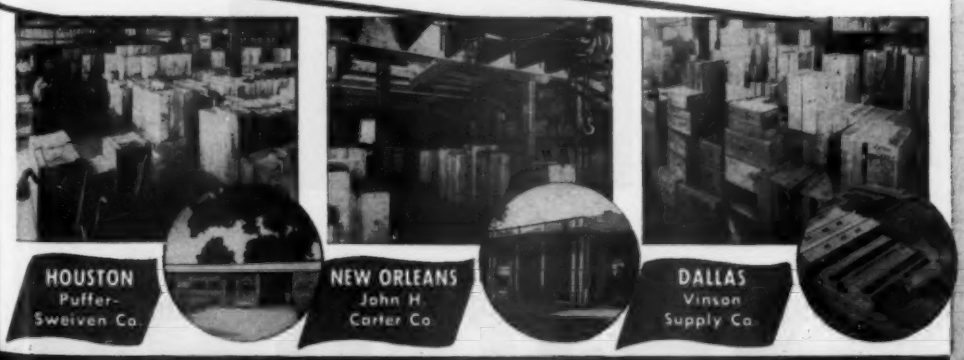

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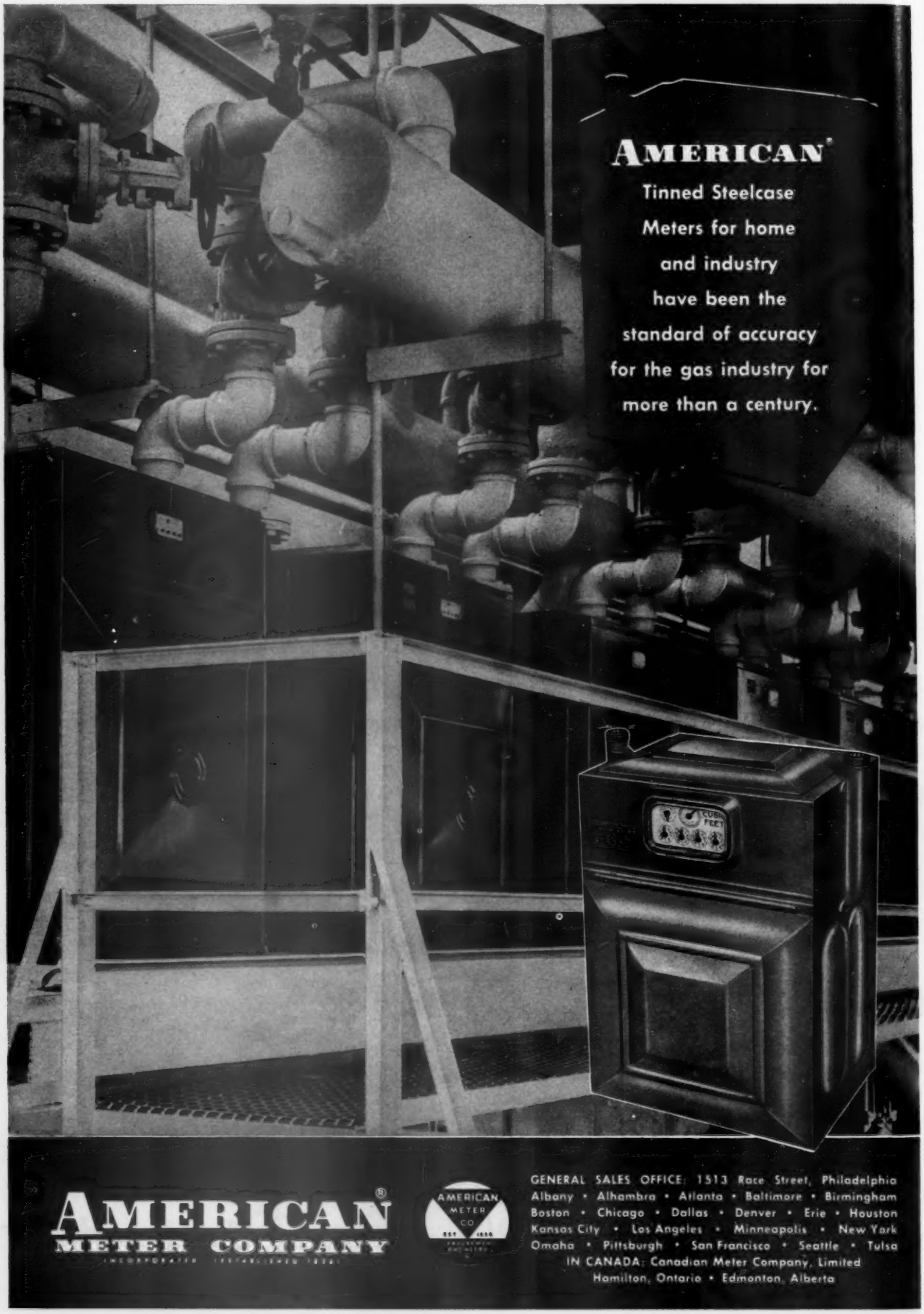
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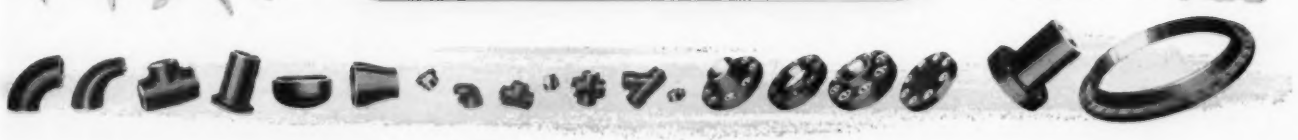

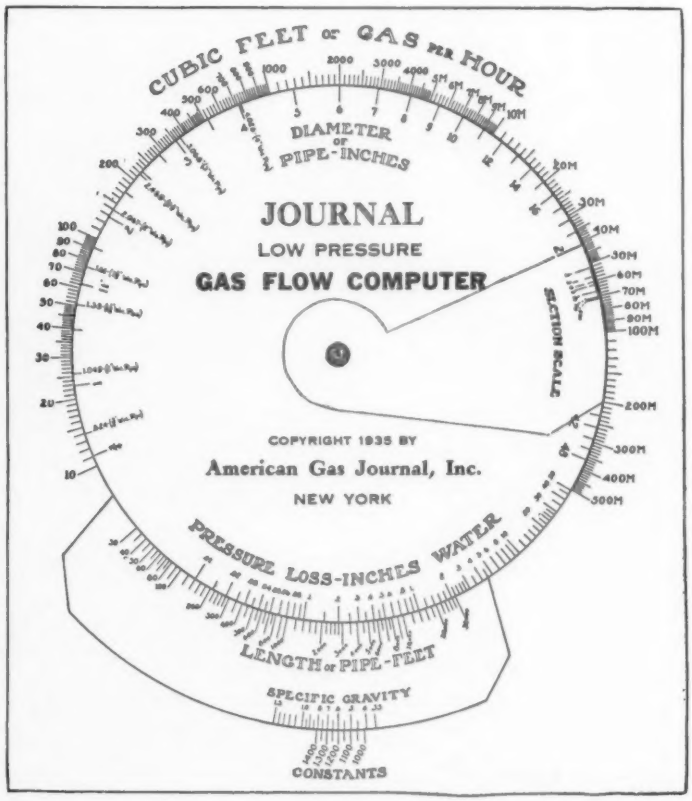

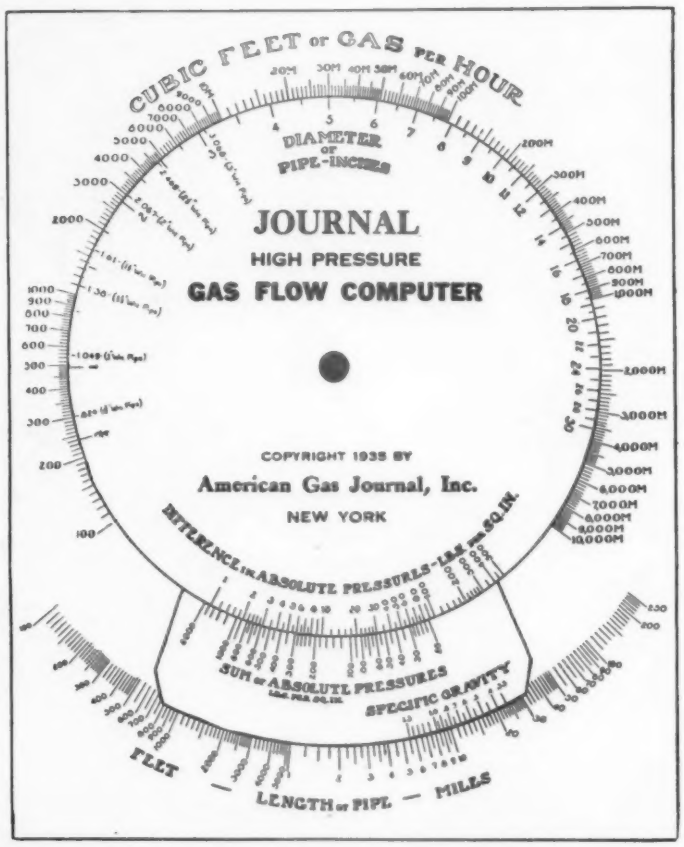

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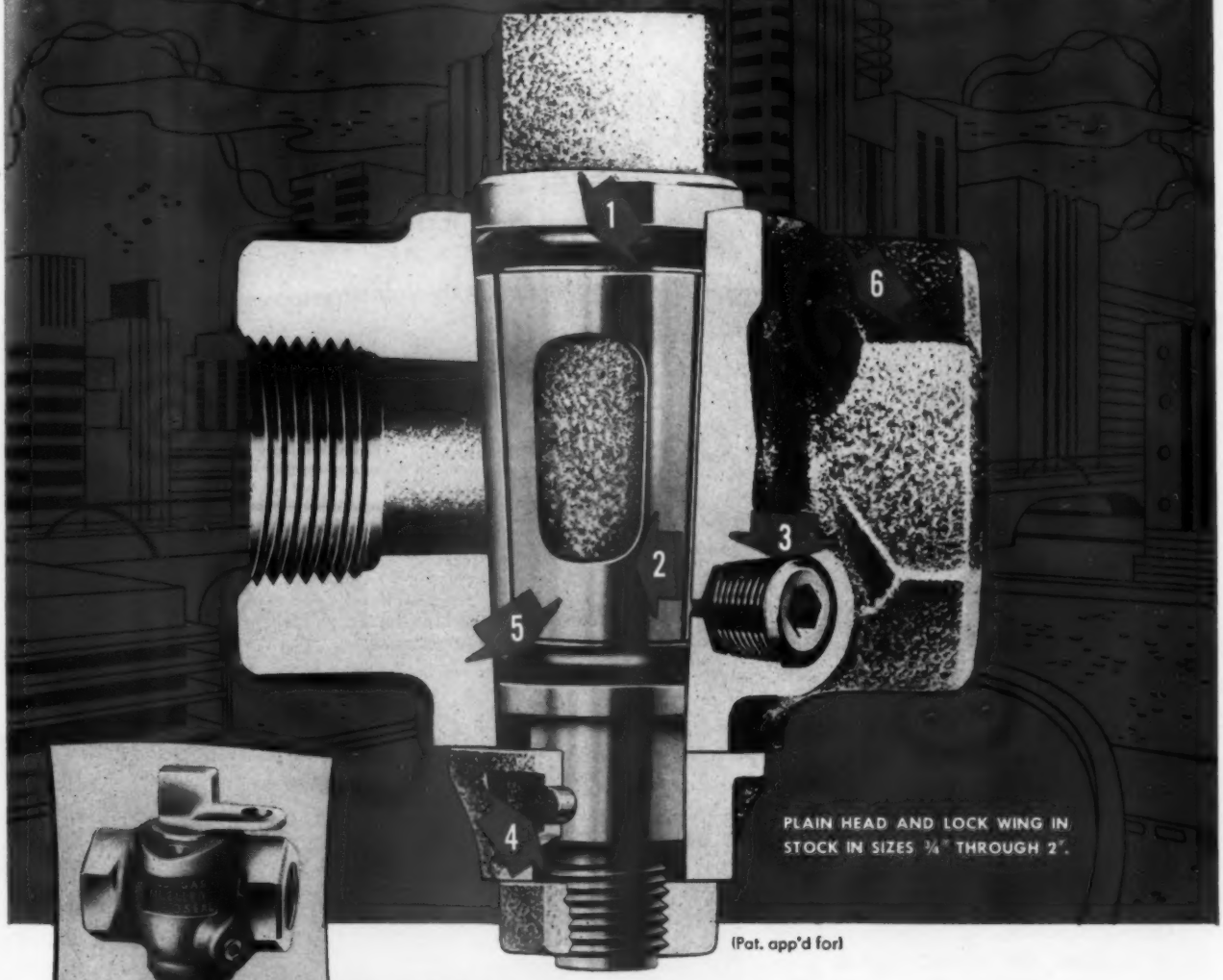

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1948
1949
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1942 — The Blain Process. Hi-Btu Oil Gas with oil heating in Single Generator and Twin Generator sets.

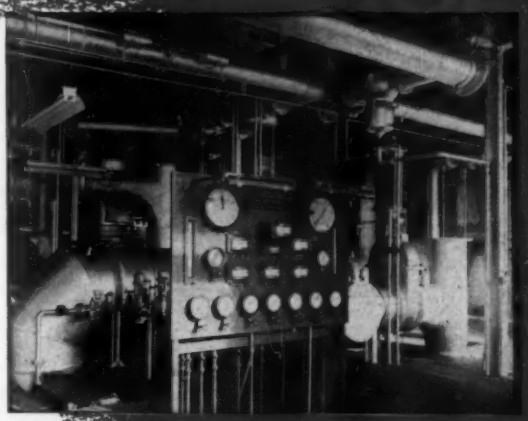
1947 — Four Shell Regenerative Oil Gas Apparatus for heavy oils. (Hall A.G.A. Process).

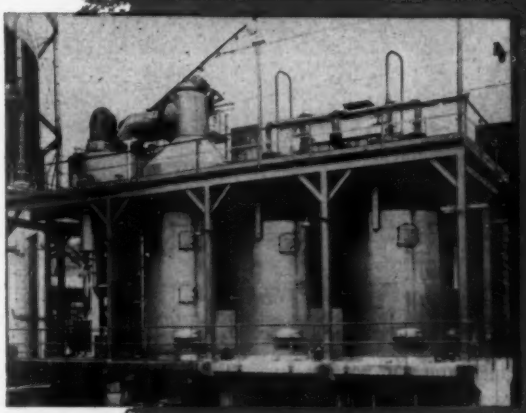
1948 — Two Shell Regenerative Oil Gas Set. The Inverted "U".

1949 — Back Blast modification of existing sets to accommodate heavy high carbon oils and improve efficiency.

1950 — Low cost conversion methods, adapting water gas plants to natural gas substitutes.

1951 — Development of new and improved auxiliary equipment for Tar Handling, Gas Washing, Oil Scrubbing, Light Oil Recovery and other problems peculiar to Hi-Btu Oil Gas.





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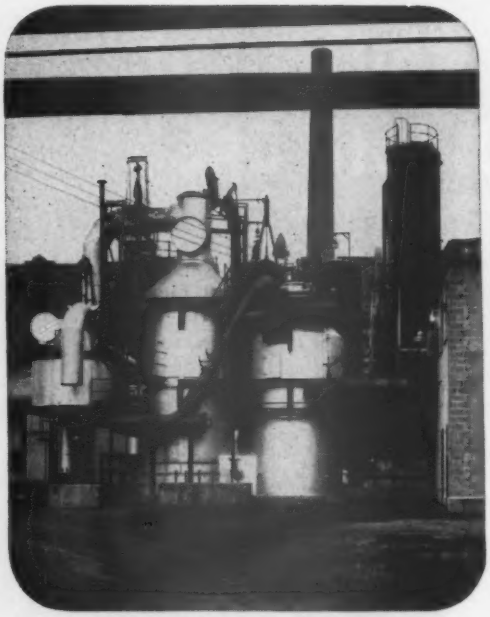

U.G.I. Cyclic Catalytic Reforming apparatus for East Gas Works, Rochester Gas and Electric Corporation, Rochester, New York.

Stamford 10" Lateral Gas Main, The Connecticut Power Company, Hartford, Connecticut.

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This scope of activities is considerably changed from the work that met the needs of the industry only a few years ago, particularly the work that we have done for thirty companies taking natural gas. Gas pipe line work has been resumed from an earlier period. The CCR Process has been started and developed. The techniques of oil gas production and natural gas utilization have been further developed as a part of the expanded needs of the industry.

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EXPERIENCE IN DESIGN: United has over 70 years' experience in gas industry construction.

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ECONOMICAL CONSTRUCTION: United has large well-organized forces for natural and manufactured gas construction work.

EXPERIENCE IN OPERATION: United has experienced plant operators for securing most efficient results from apparatus.

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—for process drying

Now . . . Dravo Corporation offers you the new Dravo Gas-Fired Unit Heater, ideal for installations requiring a heating output of 68,000 to 172,000 Btu. This new addition, joining the Dravo *Counterflo* Space Heater models, makes available a range of Dravo Heaters from 68,000 to 2,000,000 Btu.

ENGINEERED DESIGN

The Dravo Gas-Fired Unit Heater is ruggedly constructed with a cast iron heat exchanger, cast iron burners and a heavy-gauge steel exterior jacket with baked enamel finish . . . all designed for years of satisfactory service.

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The Dravo Gas-Fired Unit Heater is delivered completely assembled. Installation requires only hooking up gas connection and exhaust stack. Units are wall-hung or suspended from roof trusses to conserve valuable floor space.

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Dravo Gas-Fired Unit Heaters are approved by American Gas Association and listed by Underwriters' Laboratories, Inc. Safety pilot turns off gas automatically if the pilot light goes out or burns too low for perfect ignition. The cast iron heat exchanger and combustion chamber withstand corrosion and will not burn out.

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Units are available in a variety of sizes from 68,000 to 172,000 Btu, equipped with a fan or blower. Blower models are recommended for installations requiring heated air at greater velocity or against greater static pressure.

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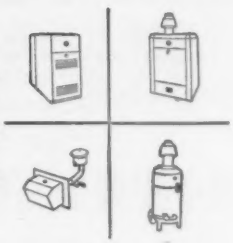

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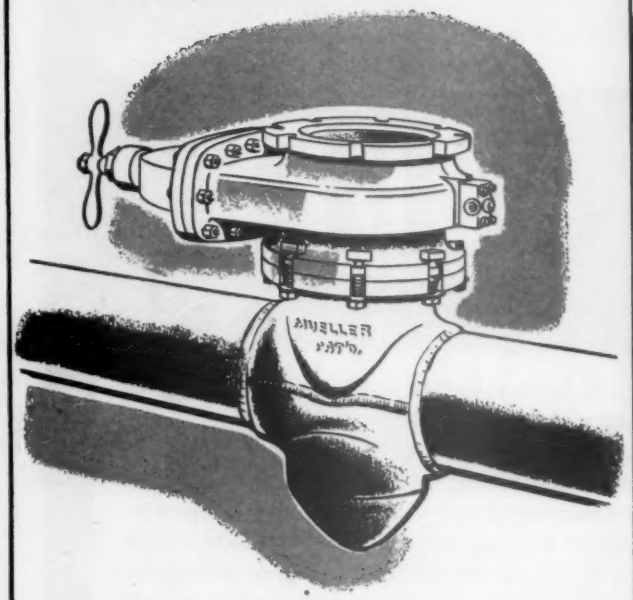
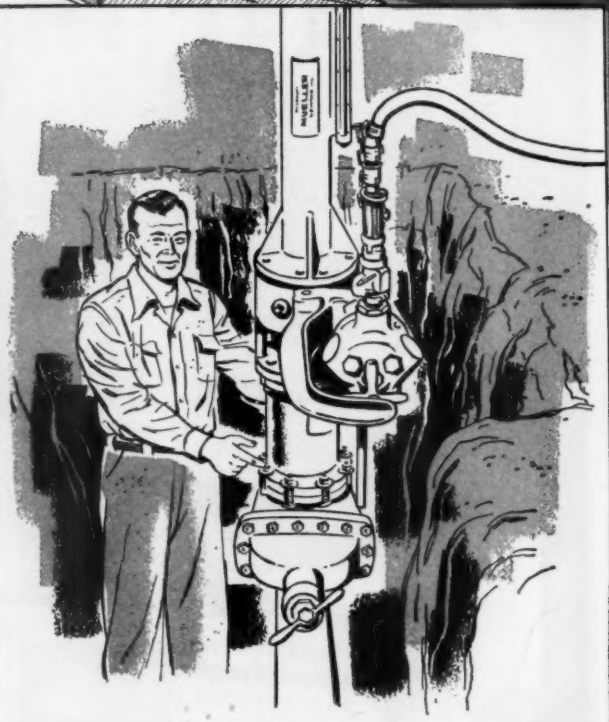
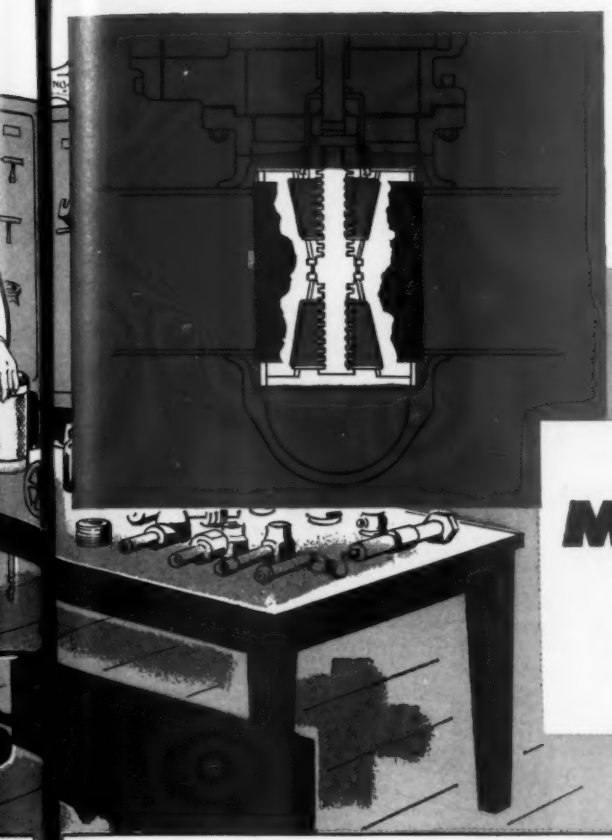
HERE'S HOW TO MAKE A STOP-OFF SAFELY AND SIMPLY!



STEP 1 WELD FITTING TO LINE. TACK WELD HALVES OF FITTING TOGETHER, POSITION, AND WELD TO MAIN. COMPLETION PLUG SHOULD REMAIN IN FITTING—**HAND TIGHT**—DURING WELDING, TO PREVENT WARPING. ALLOW FITTINGS AND PIPE TO COOL NATURALLY. (DO NOT CHILL) BOLT MUELLER GATE VALVE TO FLANGE OF FITTING.



STEP 2 MAKE CUT THROUGH LINE. CUT IS MADE WITH A MUELLER C-1 DRILLING MACHINE POWERED BY H-600 AIR MOTOR. WHEN SHELL CUTTER HAS CUT ENTIRELY THROUGH TOP AND BOTTOM OF PIPE, IT IS RETRACTED, GATE VALVE CLOSED, AND DRILLING MACHINE REMOVED.



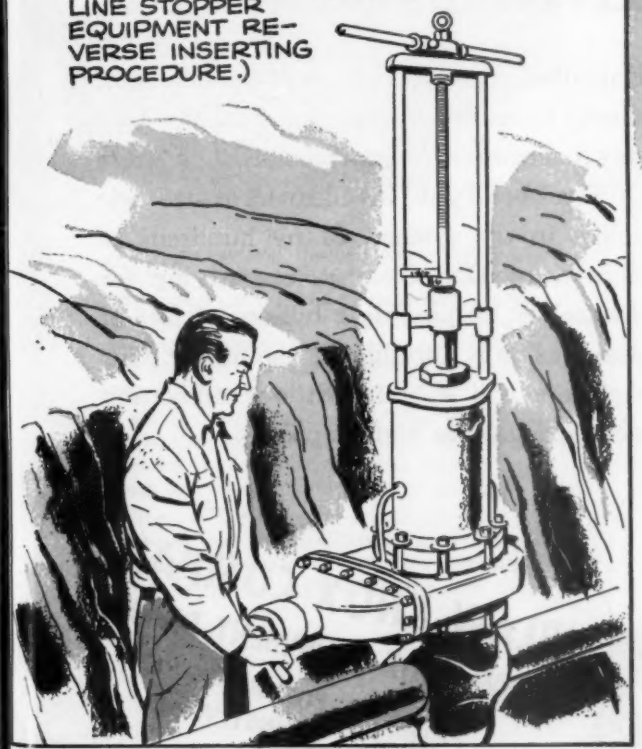
MUELLER STEEL WEDGE STOPPERS

Mueller Steel Wedge Stoppers are designed for high, medium or low pressure stopping jobs. They are capable of stopping off pressures up to 500 p.s.i., but are limited at the present time to 230 p.s.i. maximum due to the pressure withstanding limitations of the gate valve. Each stopper comes complete with a steel protector sleeve which provides a means of bonding pressure when replacing the cover and protects the cover from damage when not in use. Steel Wedge Stoppers consist of a double-action expanding mechanism inside of a split steel cylinder covered with a replaceable neoprene sheet. The split functions as a by-pass and also allows line pressure to assist in the stop-off.

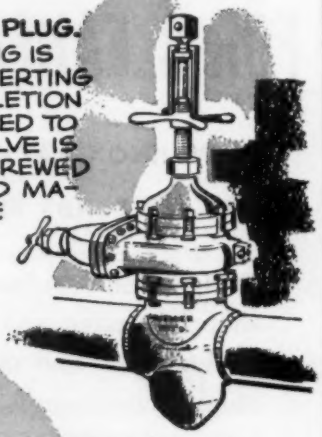
MUELLER NO-BLO Method

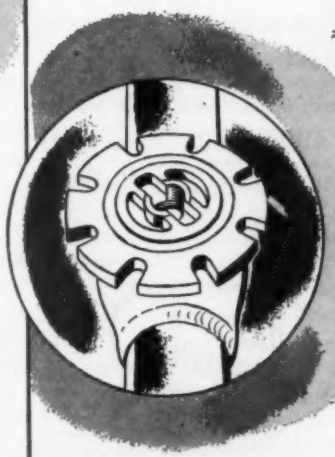
This is another of a series of gas distribution problems and their step-by-step solution by Frank Miller, Gas Service Engineer of Mueller Co. Mr. Miller is pictured here in one of the many Gas conferences he is conducting throughout the country.

STEP 3 MAKE STOP-OFF. STEEL WEDGE STOPPER IS ATTACHED TO THE INSERTING BAR AND THE STOPPING MACHINE IS BOLTED TO GATE VALVE. VALVE IS OPENED, STOPPER IS LOWERED INTO FITTING AND EXPANDED. ISOLATED SECTION MAY NOW BE REPAIRED. (TO REMOVE LINE STOPPER EQUIPMENT REVERSE INSERTING PROCEDURE.)



STEP 4 INSERT PLUG. COMPLETION PLUG IS ATTACHED TO INSERTING TOOL AND COMPLETION MACHINE IS BOLTED TO GATE VALVE. VALVE IS OPENED, PLUG SCREWED INTO FITTING, AND MACHINE AND VALVE REMOVED.





STEP 5 CAP FITTING. PLUG IS TIGHTENED, GASKET POSITIONED, AND COMPLETION CAP BOLTED SOLIDLY IN PLACE. INSTALLATION IS NOW COMPLETE AND A MEANS IS PROVIDED FOR FUTURE STOP-OFFS.

MUELLER CO.

Dependable Since 1857

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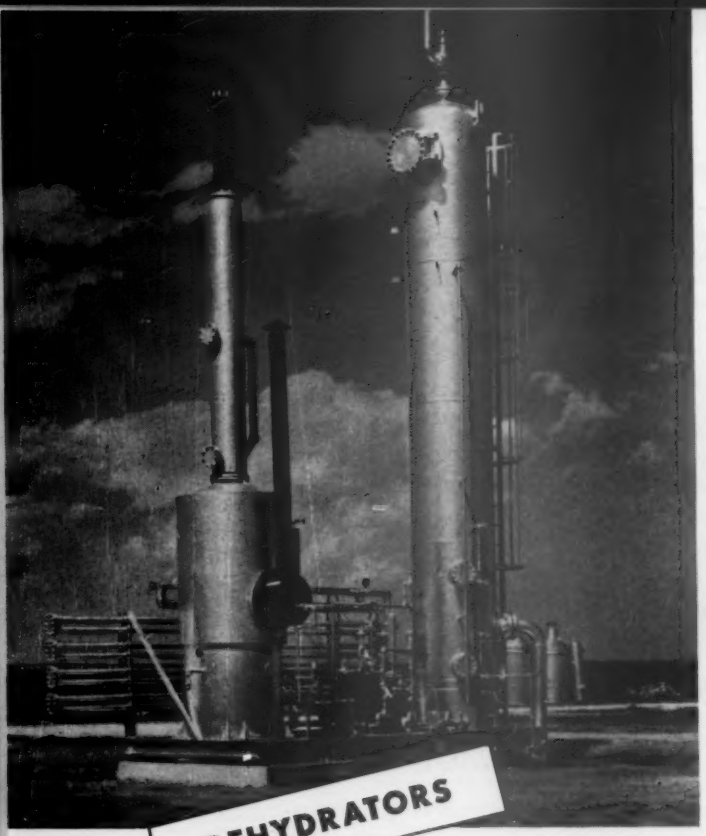
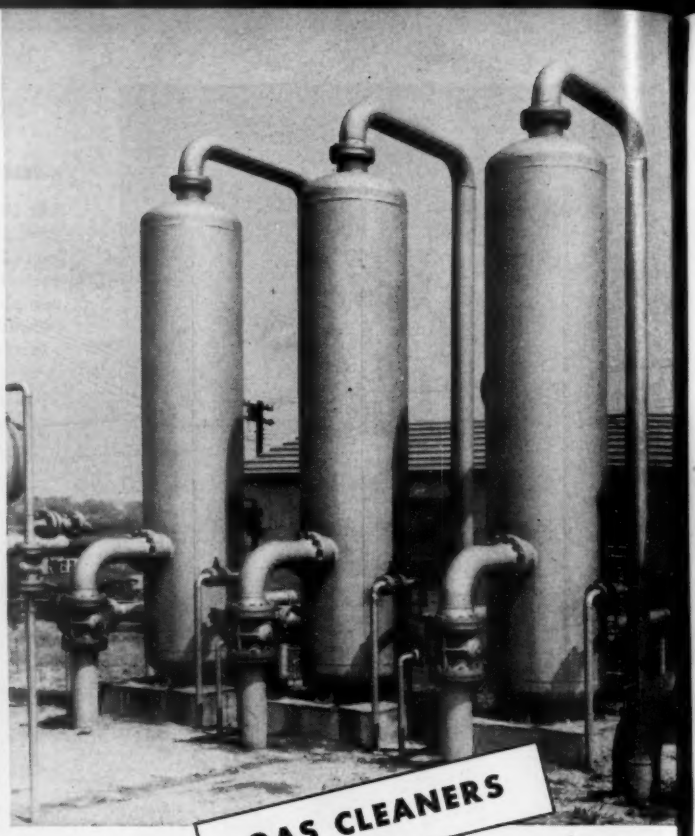


DEHYDRATORS



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Designed and engineered as a compact unit, shop fabricated and skid mounted to hold field erection and moving costs to a minimum. Investment is nominal, salvage value high, and operating and maintenance costs low. For information write for Bulletin No. 2410.

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YOURS FOR THE ASKING

Complete operating data on Blaw-Knox Gas Cleaners and Oil Foggers belongs on every gas man's desk. Send for Bulletin 2353 today.

BLAW-KNOX COMPANY
BLAW-KNOX EQUIPMENT DIVISION
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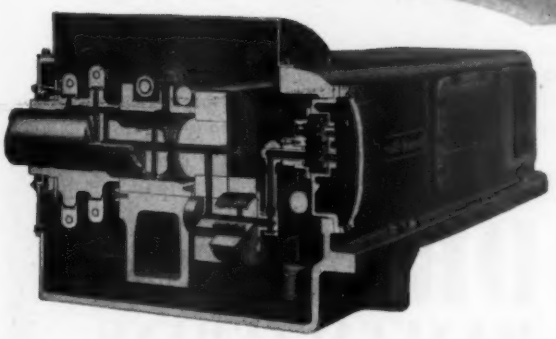
BLAW-KNOX

Sets the Standard for STEAM-POWERED COMPRESSORS



This cross-section through one of the main bearings of the new XPV shows its unique lubrication system. The combination oil-pump drive and distribution system (patented) supplies oil through drilled passages directly to the crankpin and main bearings, valve-gear eccentrics, and crossheads.

All of the oil discharged from the pump passes through a fine-mesh bronze filter before entering the distribution system. The oil stays clean and bearing surfaces are protected.

Because the frame is sealed, oil stays in; and dust and dirt stay out. The oil in the crankcase keeps clean, and the smooth contours of the frame make it easier to keep clean outside.

Ever since the first steam-powered compressor of "4-corner" construction was built by Ingersoll-Rand in 1900, I-R "steamers" have been the standard of comparison. Through the following years, other models introduced such precedent-breaking improvements as: balanced piston-valve riding cut-off steam end, double-crosshead and tie-rod construction, and Channel Compressor Valves.

The new XPV sets a truly new standard of comparison. Many of the outstanding features of the old XPV have been retained because of their advantages. Many improvements have been introduced to make a superior compressor.

One of the outstanding features of the new XPV is its full-floating bearings. Main, crankpin, and crosshead-pin bearings are all free to rotate; rubbing speeds are reduced, and bearing loads and lubricant are distributed evenly around the entire bearing surface both inside and out. The wear on these non-adjustable bearings is almost non-existent, and the sealed, dust-tight frame need be opened only for inspection.

Part by part, and as a complete unit, the new XPV has been designed to compress air or gas with the greatest over-all efficiency. For further information ask the nearest I-R branch office for Bulletin 3444-A. Call upon Ingersoll-Rand engineers to prove why you should use this new XPV, the new standard of comparison.

Ingersoll-Rand

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keyed . . .

to your industry's progress

Over the years, and particularly during the decade of unprecedented national growth, the gas industry has written into the record proof that free enterprise *works*. Its energy, skill and efficiency have brought the benefits of gas to 25,000,000 homes, at rates hardly higher than those of ten years ago, in spite of an over-all price rise of 75% since 1941. The Pacific Coast gas companies deserve credit for much of this progress.

Expansion brought problems—higher pressures, new service lines, new materials. And always the industry has found Dresser ready with the right products to help solve those problems. Products that reduce maintenance, speed installations, handle emergencies, safeguard against corrosion, and insure permanently tight joints at highest pressures.

Dresser pledges that it will continue to move forward with the gas industry to meet modern operating conditions. It is a pledge backed by 60 years of performance on which the industry has always been able to depend.

DRESSER PRODUCTS
FIT THE GAS INDUSTRY'S MODERN REQUIREMENTS

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For New Pipe Lines:

Reinforcing Sleeves
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Repair Sleeves for Working Pressures up to 1500 lbs. psi, or higher
Porous Weld Clamps

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Couplings, Repair Sleeves for Mains
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Dressertape* for Field Joints and Pipe
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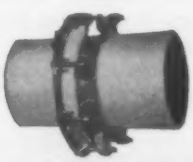
*Dressertape is a trademark of Dresser Manufacturing Division.

Style 38 Steel Couplings


Style 60 Bell Joint Clamps

Style 93 Repair Sleeves

Style 90 Service Fittings

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it is our **MAIN**
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- RELIABLE SHIPPING SERVICE

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Our one purpose is to furnish the *best* and *most economical* gas odorization. We are presently satisfactorily serving gas users over the entire nation, and in Canada and Mexico.

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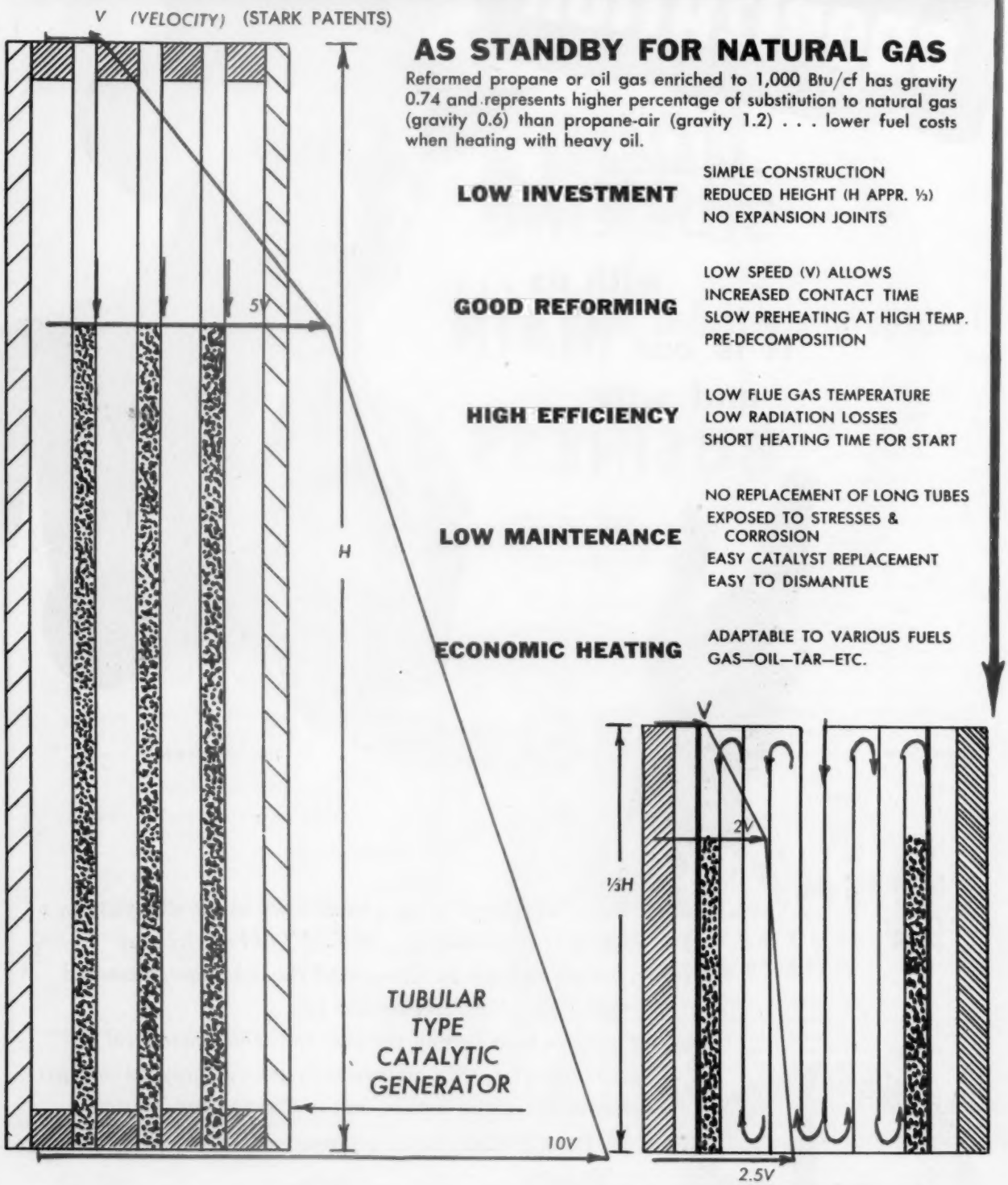

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ECONOMIC HEATING
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NORTH AMERICAN UTILITY & CONSTRUCTION CORP.

CHRYSLER BUILDING NEW YORK 17, N. Y.

Editorial:

Dead Center

WITH the interminable monotony of a tympanist on the jungle drum we have been sounding alarms on the sorry-state of merchandising and promotion in the gas industry. Now, we are able to congratulate utilities and appliance manufacturers alike on the evidence of a quickened determination and a new spirit of industry cooperation that has lately been manifested.

The Gas Industry Development Program, product of the joint labors of committees from American Gas Association and Gas Appliance Manufacturers Association has been accorded overwhelming acceptance by the membership of these two organizations. Gas companies representing some 80% of the meters of the industry, and manufacturers accounting for 90% of the appliance output of GAMA members have subscribed to the new program, categorically and matching point by matching point.

These are commendable decisions. Never before, within the scope of our observation of these two interrelated and interdependent branches of the gas industry, have we witnessed such a drawing-together of these two factions. Inevitably linked though their fortunes are, too often in the past they have sought to work out those fortunes in an atmosphere of mutual skepticism and arm's length trading.

Perhaps in the first flush of enthusiasm for their new rapprochement, the purveyors of gas and the makers of appliances may be pardoned if they pause, with justifiable satisfaction, to survey the distance they have already come.

But, only time for the barest of pauses can be allowed, and already that time is past. Realistically, we must all recognize that mutual commitments toward mutual goals are at best only token evidence of good faith and good intentions. There exists at the present instant of time nothing more concrete than these joint assurances that the effort will be made. Effective and convincing proof of compliance with the mutual pledges now becomes a matter of individual responsibility and individual concern for every utility and every appliance manufacturer who believes enough in the industry to gamble on its future—who believes enough, in fact, to even gamble that the industry *has* a future.

The utilities have pledged themselves to promote especially the products of the manufacturers who upgrade their appliances and who provide adequate advertising and promotional support to their sale.

Upgrading of appliances is a hazy term, at best. While the improvement of performance standards is a laudable goal for any manufacturer, it has not been for want of upgrading, that gas appliance sales have fallen behind in the procession. There are performance, convenience and selling features to spare in every reputable gas appliance on the market today. No gas company sales executive could in conscience claim that ranges or refrigerators or water heaters aren't selling in his area because they aren't quite good enough.

They are not being sold because the *sales effort* has not been good enough. The fault has been one of failure of the manufacturers, as well as of the gas companies. It is for this reason that GAMA members have pledged themselves to "spend more on advertising and promotion to bring those activities more nearly up to a par with those of their competitors."

Right now, the Industry Development Program is on dead center. It can remain there, whirling about at a quietly-decreasing tempo until it comes to an almost-imperceptible stop. Or, it can move off and out toward the goal that its enthusiastic proponents have set for it.

What is needed right now is visual, tangible, irrefutable evidence that those who have been talking big are prepared to suit their actions to their words.

Every gas utility should be preparing to make an analysis of the market potential for every major appliance that can be sold within its service area. The utilities owe it to themselves and to the manufacturers to have this information and to make it available to the appliance industry.

Every appliance manufacturer should be laying plans to step up his advertising and promotion expenditures. He should be ready immediately to throw the weight of his support behind the gas companies and in the areas from which the essential marketing information is forthcoming.

Right now, the gas companies should be acquainting the dealers in their communities with the new and vigorous approach to gas appliance promotion that is being undertaken by the whole industry. In every instance it should be matched with a step-by-step plan of cooperation that the dealers can understand, and that will stimulate new dealer-enthusiasm and -confidence in gas appliances as profitable and salable first-quality merchandise.

The appliance manufacturers should be backing up the utilities by increased consumer advertising and, most particularly, by acquainting the dealers with what they are doing, and with what they propose to do in the near future. No proposal for gas industry development can afford to ignore the dealers who now move, according to AGA, 85% of all appliances sold at retail.

These are but a few of the things that are essential in any program like the one now under way. But, in our opinion, they are the most immediately essential because they provide the best simple, recognizable evidence that *can* be provided at the outset, showing that anything is being done . . . or that anything is ever *going* to be done.

Elliott Taylor

Guest Editorial:

by **Charles B. Gamble**
Past President, 1935, Southern Gas Association
President, Retired, Birmingham Gas Company
(*Merged with* Alabama Gas Corporation)

Let Not Pride in Accomplishment Lead to a Fall

SOMEONE has said that there is a great migration going on in the United States today. Cotton raising is moving West . . . cattle raising is moving East . . . the negro is moving North . . . and the Yankees are bringing industry South. Playing a part in this movement is the proximity of this Southern area to great supplies of the best fuel yet discovered, *Gas*.

The known reserves of natural gas in the Southern states were approximately 118 trillion cubic feet in 1945. The total for utility gas sales in the 14 Southern Gas Association states was approximately 9.9 million therms in that year.

With the development of better drilling methods, tools and casings it became possible to produce pools of gas formerly out of reach and at the end of 1952, Southern reserves of natural gas had risen to 168 trillion cubic feet, an increase of 42% since 1945. Annual utility sales in the SGA states had increased to 18.3 million therms—nearly double the 1945-total.

It is true that the increase in the price of solid fuels has hastened the adoption of gas as a substitute but, even without this price increase, the inherent advantages of gas would have been sufficient to assure its use, though it is probable that the displacement of solid fuel by gas would not have proceeded as rapidly.

Governmental limitations placed on exploration for additional reserves and inability to expand pipeline facilities as rapidly as demands for gas increased, resulted in the creation of a very definite "sellers' market." Herein may lie a danger to the gas industry.

During the past twenty years or so we have seen two great industries sicken. While many factors have contributed to this ill-health, probably the most important of all was the failure to realize that their responsibility did not end with delivery of the product to the user.

In the cases of the ice and coal industries, particularly in the field of residential or domestic use, little if any attention was paid to the type and efficiency of the appliances which, with the product, provided the service the customer really wanted.

It goes without saying that gas users are not interested in gas as such, but only in its ability to provide them with end-products, such as meals on the table with a minimum of effort, hot water when wanted and in the quantity desired, food preservation that is dependable and adequate and comfortably air-conditioned homes in both summer and winter.

It is unfortunate that the only measure of the value of the end-products resulting from the use of gas is the volume of the gas used. It is not this volume alone that the gas customer is buying. Obviously, gas is only one of the factors assuring them this final result.

It seems quite obvious, too, that unless the gas industry continues to recognize the importance of the factors other than gas that must be present to provide the service the customer expects, it runs the risk of joining those who failed to realize that their idea of what they were selling and their customers' idea of what they were buying had to be identical.

Responsibility does not end with delivery of good gas at proper pressure at the meter outlet. Legally, this may be so but to maintain good health in the gas business, more than this is needed.

Yes, the position of the gas industry in The South today is excellent. Gas occupies a dominant place among all the fuels. Let not the attainment of this position which, after all, is largely based on conditions not produced by the industry, fill us with the pride of accomplishment leading to a fall.

Remember the last verse of that well-known poem, "Casey at the Bat."

> Oh somewhere in this favored land
> The sun is shining bright.
> Somewhere the bands are playing
> And somewhere hearts are light.
> Somewhere birds are singing
> And somewhere children shout.
> But there is no joy in Mudville,
> Mighty Casey has struck out.

Let us hope that the gas industry never *Strikes Out*.

New Orleans: An Old Gay City on the River

AFTER the Mississippi has cut its serpentine way through the middle of the Country, and just before it dumps its muddy load into the warm green Gulf, it passes New Orleans with all its turbulent and romantic history; its joys and accomplishments; its key position for the present and the future.

As the delegates and visitors to Southern Gas Association's convention assemble there, they will be pleasantly aware of the lasting blended influences of French and Spanish domination. New Orleans, with much Latin tradition and setting, offers a distinctly foreign atmosphere without losing its character as a thriving and progressive American city.

Pirates' Alley, in the French Quarter—colorful and quaint sightseeing spot.

The French founded the city in 1718 and later the Spanish helped develop it. It was about 1728 when a definite city plan was established, using the town square as its focal point.

Today, that Old New Orleans is the area of the Vieux Carré, old square. Then called Place d'Armes, now Jackson Square, it is a locale of historic significance. In the Cabildo, alongside St. Louis Cathedral, the French ceded to the United States all the Louisiana Territory; from the Mississippi to the Rockies, from Canada to the Gulf.

After that, 1803, New Orleans became an American city. But, it was not quite a simple matter.

The Creoles, white descendants of the original French and Spanish settlers, did not view the arrivals of Americans in a passive manner. In fact, Old New Orleans would have none of them—and the Americans had to build their own city in adjacent areas. The social, economic and cultural aspects of the Americans and the Creoles were distinct; at one time, Canal Street was the line below which there was no welcome for Americans. Subtle traces of the less-violent distinctions are still discernible.

Perhaps this highly-spirited, and often fatal, rivalry between American and Creole contributed substantially to the energy that has forged the city with high importance, nationally and internationally.

Gas industry visitors will honor all of New Orleans' colorful history—French, Spanish, Creole and American—as they think about the reminders of the past that they will see and hear: architecture . . . art . . . customs . . . speech patterns . . . battles . . . river boats . . . trade . . . the gay life . . . churches . . . theatres . . . and, always, *amour*.

Now, it's "A Bus Named . . ."

Southern Gas Association's 45th Annual Convention Stresses Sales Considerations

THE vision and work of six men in New Orleans, 124 years ago, will be commemorated, in effect, as Southern Gas Association holds its 45th annual convention in the city, this month.

When James H. Caldwell, an English actor-manager, and five associates organized New Orleans Gas Light Co., in 1829, and then built and operated a gas plant that went into service in mid-1834, their foresight hardly could have reached the heights to which their initial efforts would be taken by 1953.

More than 1,800 delegates and visitors are expected to converge on New Orleans for the three-day session of the SGA membership of 67 gas companies and 158 manufacturers-distributors.

Natural gas—all phases, from gathering through sales—will be the general subject considered in the convention's five sectional meetings.

The heart of the entire natural gas industry—87½% of all production and reserves—is within the 14-state area of SGA. Here, is concentrated the greatest natural gas activity in history and the supply that assures continued expansion and profitable operation of the Country's gas industry.

Only exporting area

This is the only natural gas producing area that exports gas to other areas—in addition to the huge volumes consumed within its own states.

More than 4½-million customers, 25% of the 48-state total, are served by the gas utilities in these states. Of the 16 companies that operate 1,000 miles or more of transmission line, 12 are headquartered in The South. Those 12 companies operate more than 30,000 miles of long-distance line.

GREETINGS TO SGA FROM TEXAS COMMISSION

THE Texas Railroad Commission is cooperating with you gas men by putting into effect the strictest kind of oil and gas conservation practices to prevent waste of these natural resources, and thereby assure a continued long supply of the cleanest, most convenient fuel on earth—natural gas.

You cannot tie the housewives of America to a coal scuttle and an ash can when natural gas and a thermostat will keep the house warm.

ERNEST O. THOMPSON
Chairman
Texas Railroad Commission

SGA CONVENTION HEADQUARTERS

Jung Hotel, New Orleans

In total, The South has a 118,000-mile grid of transmission and distribution lines, more than 25% of the national total.

Since it was organized, 45 years ago, SGA has been close to the people and the area it serves. It has long been the well-organized medium through which technical and sales information is exchanged continuously among members, in the interests of the entire industry.

Technical and sales presentations

The technical presentations at the New Orleans convention will be made largely by Southern specialists on gas industry problems but the experiences and findings in other parts of the Country also will be made available through speakers from distant gas companies.

As in all other gas industry meetings and conventions, discussion of sales problems and potentials have been accorded appropriate emphasis on the SGA convention program. No fewer than 13 addresses will deal with sales matters. That is in line with the generally aggressive appliance merchandising and dealer-cooperation policies that are followed by gas companies throughout The South; in 60% of the major service areas, gas companies are direct sellers of appliances.

Feature of SGA activity

Round-table conferences are both a feature and an accomplishment in SGA activities. Fully-endorsed by the managements of the member-gas companies, these conferences are planned to give specific working information to the personnel in positions to apply it to advantage for their individual companies.

This mutual-cooperation conference plan has been eminently successful and now appears to be a permanent feature of SGA activities.

The wide expanse of territory covered by SGA—Atlantic Ocean to New Mexico—has made it necessary to arrange these conferences for the eastern area and western area, thereby cutting travel time and expense. Generally, the same ground is covered in each.

The conferences are scheduled by association year and are divided according to sections or interests. The 1952-53 schedule included 28 conferences, each dealing with a specific subject under accounting, distribution, employee relations, sales or transmission.

An agenda, prepared and mailed in advance of each conference, enables the participants to prepare adequately for the discussions they will attend. Later, summary notes of the actual discussions are prepared and distributed to form a growing reference source.

New motion picture

One of the features of the convention will be the showing of "Natural Gas," a motion picture produced by the association to tell the story of natural gas from the search for it, the drilling of wells,

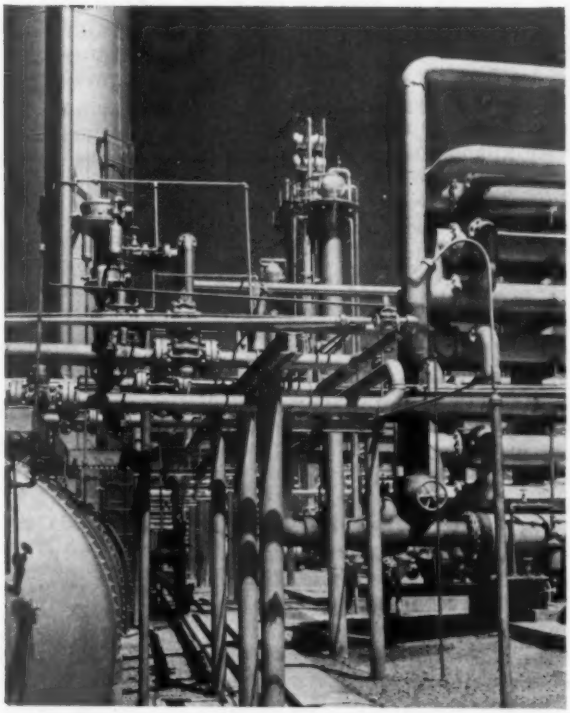
(Continued on page 28)

GREETINGS TO SGA FROM MISSISSIPPI COMMISSION

IT is with unique pleasure that I am privileged to extend to the members of the Southern Gas Association a cordial welcome upon your passing through Mississippi to New Orleans, for your forty-fifth annual convention. It is with equal gratification that I join chairmen of other commissions of Southern States in extending to you our profound greetings. It shall be our chief concern and desire to acquaint you with the progressive hospitality that prevails in this section of the country. It will be our policy to emphasize the fact that our economic security is of mutual concern to all sections of the United States of America.

ALTON MASSEY
Chairman
Mississippi Public Service Commission

Record Advance Registration Shows High Interest in Program's Natural Gas Features



Production and processing of natural gas in the South and Southwest.

SOUTHERN GAS ASSOCIATION'S OFFICERS AND MANAGING DIRECTOR

John H. Wimberly

president of Southern Gas Association, has had a busy career in the gas industry and all of it has been with Houston Natural Gas Corp., which he joined in 1928, one year out of college, as chief clerk in the accounting department. Since that time, he has moved successively to auditor, treasurer and director, vice president and treasurer and, most recently, to executive vice president. His gas company responsibilities have not precluded either his vigorous participation in a wide range of community activities in his native-Houston or his devotion to the work of SGA for the gas industry. Since 1947, he has been SGA director, convention committee chairman, second vice president, first vice president, membership committee chairman—and president.

John H. Wimberly

During Mr. Wimberly's term as SGA president, the equivalent spot in American Gas Association has been occupied with no less vigor by Mr. Wimberly's boss, Frank C. Smith, president of Houston Natural. Available records do not indicate any other comparable dual-compliment to a single gas company's executives.

H. K. Griffin

first vice president of SGA, started thinking about utilities in Walla Walla, Wash., shortly after he put a hand on his engineering diploma at the University of Iowa. He stayed along the West Coast with other companies in California and was in Oregon, the vice president and general manager of People's Water & Gas Co., Portland, when the company disposed of that property in 1940. He was transferred to Meridian, Miss. Eleven years later, he became president of Mississippi Gas Co., and when that company was sold to Mississippi Valley Gas Co., last September 15, Mr. Griffin became vice president of the new company.

H. K. Griffin

Soon after his arrival in Meridian, Mr. Griffin became a part of important community activities and since that time has extended himself in their interests.

Mr. Griffin was chairman of the SGA operating section in 1947, and was elected a director in 1948. His election as second vice president followed for the 1951-52 association year—then, first vice president.

Charles I. Wall

second vice president of SGA, has a smile that belies his nickname—Stoney. We understand that really is a tribute to his football characteristics, with the Kansas Jayhawkers. In 1927, his campus days over, he went to talk with a man in West Texas Gas Co., and since then he has been pipe painter, utility laborer, purchasing clerk, purchasing agent, district manager, new business manager, general superintendent, assistant general manager, vice president—and, since March 1951, he

Charles I. Wall

SGA CONVENTION

(Continued from page 26)

processing, delivery to transmission systems and, eventually, utilization at the burner tip.

"The story we are going to tell is a success story," the audience is told as the picture opens. "Also, it is an American story. . . ."

Then, various types of successes are outlined but this picture is concerned with the triumph of a flame and of the men who harnessed it for new energy.

The work involved in bringing gas to the surface and then to the consumers' burners is shown clearly, with appropriate emphasis on the equipment and facilities that are necessary—together with the multi-million dollar financing that is needed.

The clock-like accuracy of meters, instruments and equipment are presented for wide-understandability and show the assured flow of gas from source to point of utilization.

Utilization, in itself, is given full play with showings of modern gas appliances, including all-year air-conditioners, house heating equipment, ranges, water heaters and all the other major appliances that represent gas utility load.

Arranged for either company or consumer showings, the audiences will see that "here is instant heat . . . natural gas is ready to serve you from the tiniest warm glow to a hot roasting blaze with all the variables in between at finger tip."

Industrial utilization is played up, pointing out that gas permits rigid and automatic temperature control in critical operations.

The showing of this picture culminates more than 3½ years of work by the SGA motion picture committee. Last August, president John H. Wimberly signed the contract for the production.

The idea for the SGA motion picture originated with the special committee headed by F. S. Kelly, Jr.; and consisting of D. W. Reeves, Carl H. Horne and J. M. Floyd. Others who have served on the committee include R. A. Puryear, Jr., Harry Cain, J. E. Hampson, W. H. Ligon, Charles K. Oxford and second vice president, C. I. Wall.

The script for "Natural Gas" was prepared primarily under the direction of Mr. Floyd, who passed away in 1951.

Arrangements have been made by the motion picture committee to supply SGA member companies with prints, and provisions are included for individualization to specific companies. The general character of the film does not include any specific companies, thereby making it possible to achieve this individualization.

The film was produced for SGA by Bob Bailey Photography Studios, Houston. The studios are prepared to make the necessary films that will individualize the picture for specific companies.

GREETINGS TO SGA FROM NEW MEXICO COMMISSION

FROM the land of enchantment we send our most sincere wishes to the Southern Gas Association for a successful forty-fifth convention in the great city of New Orleans. It is with real regret that our commission will not be in attendance because of a full docket. I am sure the meetings would be most valuable to us.

Our commission, realizing that our state is fast becoming another important gas producing state, will never knowingly act in such a manner that would retard the proper development of the gas industry in our state.

L. W. LEIBRAND
Chairman
New Mexico Public Service Commission

SOUTHERN GAS ASSOCIATION
1952-53

Officers

PRESIDENT: John H. Wimberly, Houston Natural Gas Corp.
FIRST VICE-PRESIDENT: H. K. Griffin, Mississippi Valley Gas Co., Meridian.
SECOND VICE-PRESIDENT: C. I. Wall, West Texas Gas Company, Lubbock.
TREASURER: H. V. McConkey, Southern Union Gas Company, Dallas.
SECRETARY: J. L. Campbell, New Orleans Public Service Inc.
ASS'T. SECRETARY: Kyle H. Turner, Atlanta Gas Light Company.
IMMEDIATE PAST PRESIDENT: L. L. Dyer, Lone Star Gas Company, Dallas.

Directors

Hansell Hillyer, South Atlantic Gas Company, Savannah.
E. R. Cunningham, Texas Eastern Transmission Corp., Shreveport.
Willard G. Wiegel, Lone Star Gas Company, Dallas.
Duncan A. Crawford, Atlanta Gas Light Company.
Wm. D. Mastin, Robertshaw-Fulton Controls Co., Chattanooga.
E. L. Henderson, United Gas Corporation, Shreveport.
Charley Lockhart, Jr., Bryant Heater Div., A.G.E., Inc., Dallas.
R. A. Puryear, Jr., Alabama Gas Corporation, Birmingham.
H. C. Webb, Oklahoma Natural Gas Company, Tulsa.
Chas. S. Coates, Tennessee Gas Transmission Co., Houston.
J. H. Collins, Sr., New Orleans Public Service Inc.
Chas. K. Oxford, Gas Light Co. of Columbus.
A. B. Parker, Hardwick Stove Co., Houston.

Advisory Council

CHAIRMAN: C. H. Zachry, Southern Union Gas Company, Dallas.
VICE CHAIRMAN: J. C. Flanagan, United Gas Corporation, Houston.

Section and Committee Chairman

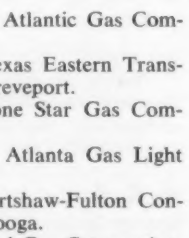
ACCOUNTING: Louis G. James, Lone Star Gas Company, Dallas.
DISTRIBUTION: R. A. Metzke, United Gas Corporation, New Braunfels.
EMPLOYEE RELATIONS: H. M. Rogers, Texas Eastern Transmission Corp., Shreveport.
SALES: J. W. Lea, Atlanta Gas Light Company.
TRANSMISSION: C. L. Perkins, El Paso Natural Gas Company.
GENERAL CONVENTION: Chas. F. Stubbs, Alabama Gas Corp., Birmingham.
MEMBERSHIP: H. K. Griffin, Mississippi Valley Gas Co., Meridian.

has had possession of the West Texas-president's chair.

In Lubbock, Texas, the company's headquarters, Mr. Wall has no spare time, what with an imposing string of community responsibilities. As good a team man as when he was a Jayhawker, Mr. Wall applies himself to SGA interests. In 1949-50 he was chairman of the operating section—now, second vice president.

Robert R. Suttle

the managing director of SGA, seems to have endless energy and applies it, full-power, to the Association's interests wherever he goes. Mr. Suttle was named managing director in 1946, at the time SGA ceased to be, as it has been characterized, "a paper organization." With the change to an active association, a full-time staff was assembled to assist Mr. Suttle. He made personal calls at gas companies throughout the 14-state SGA area and, it can be assumed, these calls were influential in the growth of the Association, since 1946. Gas company membership has jumped from 20 to 67; manufacturer-distributor members have zoomed from 6 to 158. Mr. Suttle's mission, as he told gas company managements about the aim to bring practical information based upon experience to gas personnel in grass-roots conferences, won virtually 100% support.



Robert R. Suttle

Mr. Suttle went to SGA after having been head of the department of management at the University of Texas, from which he holds Bachelor's and Master's degrees. He did personnel work while a Navy lieutenant and while with industrial companies.

Chronology of the Southern Gas Industry

1802 — 1953

Compiled by
Robert R. Suttle
Managing Director
Southern Gas Association

1802

Before a committee of prominent citizens of Richmond, Virginia, Benjamin Henfrey demonstrated his patented "Thermo Lamp" using gas generated by distillation of pit coal in a tea kettle. The committee stated that the light was "twenty times more vivid than light from oil or tallow" and that "we witnessed with pleasure the gas applied to culinary purposes." In the face of vigorous opposition and ridicule from the press, money was raised and what was probably the first gas street light in this country was put into operation. However, the plan fell through and Richmond failed to gain distinction of being the first city in the United States to have a gas lighting system. It wasn't until 1851 that a plant and distribution system was built in Richmond.

1824

The first commercial use of gas in The South was in New Orleans. James H. Caldwell, an English actor-manager, opened his theater in New Orleans on January 1 with gas lighting. A small coal gas-making plant was installed in the theater and gas was piped to the 250 lights for the stage, auditorium, and outside. Five years later, in 1829, Mr. Caldwell and five other men organized the New Orleans Gas Light Company. From England he brought 300 tons of gas-making equipment and a crew to build and operate the plant; gas service for lighting was inaugurated on August 9, 1834. By the end of 1834, two miles of main had been laid in downtown-New Orleans. The initial charge was $7.00 per Mcf.

1833

The Mobile Gas Service Corporation was organized. The original shipment of plant facilities was purchased in England, but en route was lost at sea. The following year additional equipment was successfully shipped and the coal gas plant was placed in operation. Records of the company indicate that it is the fourth oldest gas company in the United States. The primary business of the company, until early in the twentieth century, was gas lighting for city streets and commercial buildings.

1846

The Charleston Gas Light Company, the earliest corporate forbear of the South Carolina Electric and Gas Company, was incorporated by an act of the Legislature, with original capital stock of $100,000. Construction of a gas plant was begun immediately, including a new improvement to purify gas and eliminate its offensive odor. Two years later, in 1848, Joshua Lazarus, president of the company, notified the City Council that the new company would be ready to light the city on April 1.

1848

A group of public spirited Savannah, Georgia, citizens obtained a charter and organized a manufactured gas company to provide street lighting for the growing port city. The company has operated continuously since that date through wars, hurricanes, panics, depression and booms. During the War Between the States, wood was used as fuel for the manufactured gas plant; coal was unobtainable because of the Union armies.

1849

The Nashville Gas Line Company was incorporated by special act of the General Assembly of Tennessee on November 21. The company organized with an authorized capital stock of $100,000, sold originally at 75 cents on the dollar. The first gas works were completed in 1850 and, on February 13, 1851, the first gas street lamp was lighted, in Nashville. A news item stated, "The golden flame literally turned night into day." During its first year, the company distributed gas to 285 customers. Promotion-minded President Barrow offered a beautiful silk dress to the lady who was first to have her home illuminated with gas.

On May 31, a group of citizens of Norfolk, Virginia, organized the City Gas Association to supply gas for street lighting. Gas was manufactured from rosin, distilled in small iron retorts, and had a high illuminating value. In October, the name of the company was changed to City Gas Light Company of Norfolk; a charter was granted by the General Assembly, January 11, 1850.

1851

John R. McDaniel, John M. Otey, and William M. Blackburn received a charter for Lynchburg Gas Company, serving the City of Lynchburg, Virginia. The original gas plant had a capacity of approximately 30,000 cubic feet per day. The company served 156 customers with gas for lighting.

1852

Columbia Gas Light Company, a predecessor company of South Carolina Electric and Gas Company, was incorporated, with the right to manufacture and sell gas to be made from rosin, coal, oil, turpentine, or other materials. Two years later, the company was supplying gas to street lamps and homes in Columbia. Additional early history of the company is not available; the records of the company were destroyed during the War Between the States, when Sherman burned Columbia.

1854

The Gas Light Company of Columbus, Georgia, was granted a charter by the state, and the first gas was produced from wood in iron retorts.

1855

Tragedy struck Norfolk, Virginia, when yellow fever from the West Indies caused two-thirds of the white population to be stricken. According to legend, those living near the gas

plant did not succumb to the fever and it was believed the fumes from the gas plant killed the yellow fever germs.

1855

On Christmas Day, a joyous note was added to the season's festivities of Atlanta's population of some 6,000 people when, at dusk, 50 gas street lamps were lighted, bringing the community its first gas service. The following year, on February 16, the Atlanta Gas Light Company was granted a charter making it Atlanta's first public utility.

1860

Little Rock, Arkansas, inaugurated gas service on July 31, when gas was turned into the mains for lighting the business houses and many residences in the city.

1862

The *Richmond Examiner* of January 16 complains of the scarcity of gas in Richmond, stating that it was being wasted in the various Confederate government offices. It also stated that in the military prisons, gas was being burned day and night so that the Yankee prisoners might light their pipes and cook.

AMERICAN GAS LIGHT JOURNAL for January listed 46 cities in The South as being served with manufactured gas. Substantially all the plants manufactured coal gas, though a few in North Carolina used rosin. The price per Mcf varied from $2.50 at Louisville, Kentucky, to $7.00 at Port Lavaca, Texas. Average price per Mcf was approximately $5.00. The same issue of the JOURNAL listed the total capitalization of the gas companies in The South at $6,561,890. Louisiana was first, with $1,540,000 and Virginia second, with $1,300,000.

1863

In Lynchburg, Virginia, an important hospital center for the Confederacy, gas light was deemed vital for hospital operating rooms, and the gas company was declared an essential industry and measures were taken to insure its continued operation.

1864

Atlanta Gas Light Company's plant survived three battles during the War Between the States and the forty-day siege during the Summer of 1864. However, the gas plant was destroyed when the town was burned by General Sherman, the following November. Gas service was not restored until 1866.

1865

The original records of the Gas Light Company of Columbus, Georgia, were destroyed by fire resulting from the military occupation of Columbus by the Northern armies.

Natural gas was first discovered in Texas in the Nacogdoches Field. The gas contained in this field was in solution with oil and was considered worthless.

1866

Records in Chattanooga, then known as Ross Landing with a population of 3,000, show the existence of two separate and competing gas companies: one manufactured coal gas; the other, water gas. Wooden timbers 8 inches square, with 4-inch holes were used as mains. In 1874, the companies merged and formed the Chattanooga Gas Light Company. The first three-inch cast iron main, laid in 1888, is still in use.

1867

A former general of the Confederacy, J. F. Gilmer, became president of the Savannah Gas Company. An insight into the post-war Reconstruction Period was found in a letter from General Gilmer to another ex-Confederate general, P. G. T. Beauregard. He referred to "these dark days of our company when it behooves us all to work" and "at present I am rebuilding and enlarging the Savannah Gas Works and, as president, directing the affairs of the company generally."

1870

Louisiana's first gas well was discovered when a water well being dug for an ice plant in Shreveport was drilled to 865 feet. The water was salty, but a "wind" coming from the well flamed upward, when ignited with a match. Gas was piped to the ice plant, where it furnished light for many years.

1871

The Citizens' Gas Light Company was incorporated June 28 to construct a manufactured gas plant to serve the central part of Jackson, Tennessee. The company was a forerunner of West Tennessee Gas Company.

The first substantial volume of natural gas in Texas was discovered near Graham, in Young County.

1872

The American Gas Light Association, the first national gas association to be organized in this country, held an informal preliminary organization meeting in Cleveland, Ohio, in September. One year later, a meeting of representatives of many gas light companies was held in New York to complete the organization of the new association. Among the 340 who attended this meeting, were representatives from Virginia, Florida, Tennessee and Kentucky. H. H. Hoeg of Jacksonville, Florida, was a member of the committee to draft a constitution. On the committee to nominate officers were W. H. Baxter of Virgina, J. H. Kendrick of Tennessee and Benjamin Rankin of Kentucky.

1880

The Birmingham Gas and Illuminating Company, a predecessor of Alabama Gas Corporation, was organized. Birmingham had a population of 3,086 and the streets were illuminated by 20 gas lamps.

The Charleston Gas Light Company began renting gas stoves to its customers. Thomas W. Turner, president of the company, after attending the Paris Exposition to investigate the possibilities of lighting with electricity, reported that electricity would never supersede gas for lighting.

1883

The Roanoke Gas Company was issued a charter on April 4, one year before the City of Roanoke was incorporated. The original plant consisted of one bench of six small hand-fired retorts, and the first gas holder had a capacity of 50,000 cubic feet.

1888

Natural gas was first discovered in the Arkansas Valley near Fort Smith, Arkansas, in 1888, in small quantities which were not commercially profitable.

1894

Gas stoves for cooking were introduced in Nashville, Tennessee. At the turn of the century, there were approximately 1,500 gas ranges in use by the housewives of Nashville.

1895

The Tampa Gas Company was organized on April 9 with a capital of $150,000. A contract was entered into with the

City of Tampa for supplying street lights. This contract remained in effect until 1921.

1900

Corsicana became the first city in Texas to utilize natural gas, piped from a field near the city.

At the beginning of the new century, natural gas transmission lines in The South totaled approximately 300 miles.

1901

The first large scale supply of natural gas was discovered in Texas, when Captain Anthony F. Lucas, the Austrian mining engineer, brought in the famous Spindle Top gusher, four miles from Beaumont. This oil field contained natural gas dissolved in the vast oil pool. The gas was not put to commercial use for many years.

Arkansas's first natural gas field of commercial importance was discovered near Mansfield in Sebastian County. Five years later, natural gas was made available to Fort Smith. The discovery well, Choctaw Oil Company's No. 2, was still producing at one-half volume in 1940.

1902

Following the second failure to introduce natural gas in Beaumont, Texas, a small manufactured gas plant was built and Beaumont used manufactured gas until 1925. The two previous failures to deliver natural gas resulted from sulphur in the gas causing fumes, and later the failure of the gas wells supplying the system.

1903

A 2 inch line from a gas well to a brick plant north of Tulsa, Oklahoma, was laid by J. M. Guffey and John Galey, of Pittsburgh, Pennsylvania. The following year, they acquired a 25-year franchise to serve Tulsa.

1904

Gas was discovered in commercial volumes in North Louisiana and during the next few years pipelines were constructed to bring this gas to Shreveport, Texarkana and other communities in the area.

The Ponca City Oil, Gas and Minerals Company, a predecessor of Northern Oklahoma Gas Company, was organized, and obtained a franchise to distribute gas in Ponca City. Two years later, the first natural gas was turned into the mains from a pipeline extending to two shallow wells located near the city. Six years later, 600 customers were being served.

1905

Natural gas was discovered in a number of wells drilled for oil in North Caddo Parish, Louisiana. The Latex Oil and Pipe Line Company found two producing sands in the area, but the gas pressure was so strong that the well was plugged.

The famous Glen Pool of Oklahoma was discovered. Essentially an oil field, it also produced substantial volumes of natural gas.

1906

Oklahoma Natural Gas Company was organized in Oklahoma City to bring gas from the Cleveland, Oklahoma, field. A contract was let to lay a pipeline to the Cleveland Field, but it was found to be depleted and the lines were laid to the Hogshooter Field instead. In 1907, the Hogshooter Field became depleted, so lines were laid to the Sapulpa Field and, for the first time, gas was turned into distribution lines in Oklahoma City.

Amarillo Gas Company was organized and was granted a franchise by the City of Amarillo. One year later, the company began selling manufactured gas.

In February, 21 natural gas men met in Kansas City to organize Natural Gas Association of America. At this time, the bulk of the membership was from Kansas, Missouri, Ohio and Pennsylvania, though L. K. Whitehead of the Shreveport Gas Company, Louisiana, was an active member.

The Miami Gas Company was incorporated on July 27. Its franchise stipulated that a manufactured gas company was to be built and not less than four miles of pipe were to be laid. Due to the fact that many fires were being caused by gasoline and kerosene stoves, the Fidelity and Mutual Life Insurance Company purchased $100,000 in bonds.

1908

In May, 40 men representing gas companies and appliance manufacturers met at the Piedmont Hotel in Atlanta to organize Southern Gas Association. It was to be the object of Southern Gas Association to concern itself both with technical and sales problems as they applied to The South, to study jointly problems affecting all gas companies in the area, to exchange information and experience, and to devise, by common effort, solutions to common problems, particularly those peculiar to the Southern area. Thomas D. Miller of New Orleans Gas Light Company was the first president.

1909

Lone Star Gas Company of Texas was granted a charter and began doing business on June 4. The company supplied gas from wells in Clay County to domestic and industrial customers in Henrietta, Petrolia, and Wichita Falls. The following year, a pipeline was extended to Fort Worth and Dallas and then the company was supplying 15,000 customers.

The first truck owned by Miami Gas Company, delivered by steamship, was a two-cylinder Buick. When it was unloaded, no one knew how to drive it.

1910

The first compressor station in the Southwest was built by Oklahoma Natural Gas Company at Kellyville, Oklahoma, to increase pressure on peak load days. Oklahoma Natural at this time was serving Oklahoma City, Guthrie, Shawnee and other small towns along the line.

1911

A pipeline from northern Louisiana to furnish natural gas to Little Rock, Hot Springs, Pine Bluff and intervening territory in Arkansas, was completed during this year by the Benedum-Trees interest. This pipeline later became a part of the Arkansas-Louisiana Gas Company.

1912

The first dry gas field was discovered in southwestern Texas in the Gas Ridge Field.

1913

The Oklahoma State Legislature passed a law providing for ratable production from a common reservoir of natural gas. It is believed that this was the first oil and gas conservation measure of this type to be enacted by any state.

1915

The predecessor company of Florida Public Utilities Company was chartered, with a capitalization of $500,000 and

was issued the original franchise to supply gas to the City of West Palm Beach.

An agreement was adopted in June whereby Southern Gas Association became an affiliate of American Gas Institute. This continued until 1918, when the present American Gas Association was formed, at which time a new affiliation agreement with AGA was completed.

1918

Gas was first discovered in the northern part of Potter County, Texas, in what is now known as the Panhandle Field.

American Gas Association, a consolidation of American Gas Institute and National Commercial Gas Association, was organized in June. One of the speakers at the organization meeting was Philip H. Gadsden of Charleston, South Carolina.

1919

Hugoton Field was first drilled in southwestern Kansas. The first gas well was completed at a depth of 2,755 feet.

1920

Natural gas replaced manufactured gas in Amarillo, with the completion of 8" pipelines into the city.

1922

Chickasha Field, Oklahoma, was tapped with a 12-inch line by Oklahoma Natural Gas Company.

1923

The first carbon black plant was built in Stephens County, Texas, to use natural gas.

1924

The first course in gas engineering was established by Southern Gas Association at Johns Hopkins University. The course was made possible by donations from members of Southern Gas Association.

1925

Houston Natural Gas Corporation was incorporated in Texas. The company started on November 20, the date it received its charter, without a customer. The following year, service was initiated to a number of communities along the Gulf Coast. Not having a franchise to operate in Houston, the company began piping gas to suburban areas outside the city limits. In 1927, a franchise was granted to serve the City of Houston.

The first discovery of natural gas in New Mexico was in the Barker Creek Dakota Pool. Because of lack of market, however, the discovery well was plugged and abandoned. In 1942, Southern Union Gas Company's Barker No. 1 made gas commercially available from this field.

Bradenton, Florida, was piped for gas, supplied by a water gas plant.

1926

Rio Grande Valley Gas Company was organized.

1927

Lone Star Gas Company, Texas, acquired the properties of Dallas Gas Company and began a drilling program in the Texas Panhandle.

West Texas Gas Company was organized and incorporated to operate as a transporter and distributor of natural gas. Gas service was completed to 15 towns in western Texas; by 1930, 21 towns were being served.

Southern Union Gas Company was organized, serving natural gas in Wink, Texas. Two years later, after the company was incorporated, transmission and distribution systems were constructed and placed in operation in 43 towns in Arkansas, Oklahoma, Texas, New Mexico and Colorado.

On August 1, Natural Gas Association of America merged with American Gas Association. Those from The South instrumental in the consolidation were A. W. Leonard, Tulsa; L. B. Denning, Dallas; N. C. McGowen, Shreveport; H. J. Montgomery, Bartlesville, and H. C. Morris, Dallas.

1928

El Paso Natural Gas Company was organized and began operations a year later with 204 miles of 16-inch pipeline from Lea County, New Mexico to El Paso, Texas.

All the separate companies serving northern Louisiana and southeastern Arkansas were merged into Arkansas Louisiana Gas Company. The merged system consisted largely of pipelines connecting Shreveport and Little Rock, with branch lines serving Hot Springs, Texarkana and intervening communities. The source of supply was principally from natural gas fields in northern Louisiana and eastern Texas.

Consolidated Gas Utilities Corporation was organized in Oklahoma City, bringing together under one management a number of smaller Companies serving communities in Kansas and Oklahoma.

Natural gas service was inaugurated in New Orleans on August 22. The domestic rate was set at 90¢ per Mcf, as compared to $7.00 per Mcf, charged by the first gas company, in 1834. A 100-mile, 18-inch pipeline from the Monroe Field supplied the gas.

1929

On January 1 the city of Memphis received its first natural gas from the Monroe Field in Louisiana, through a 210-mile 18-inch pipeline of Memphis Natural Gas Company.

The Rodessa Field, in Louisiana, Texas and Arkansas, was discovered and first produced as a gas field; subsequent development proved it to be a major oil and gas field.

Construction of a transmission line from Clarksville, Arkansas to Fayetteville, Arkansas, was begun in the Summer and, in February 1930, natural gas service was introduced in Fayetteville, the first town served by Arkansas Western Gas Company, incorporated on July 2.

Alabama Utilities Service Corporation, predecessor company of Alabama Gas Corporation, was organized; acquired the coke oven and natural gas distribution systems in Anniston, Decatur, Montgomery, Selma, and Tuscaloosa.

Manufactured gas service was started in Miami Beach, Florida, by The Gas Company of Miami Beach, a newly-organized company and the predecessor of Peoples Water and Gas Company.

1930

Southern Natural Gas Company delivered its first gas to Atlanta on January 30, through a 1,250-mile line from the Monroe and Richmond fields in Louisiana to Atlanta, Mobile and Pensacola. This line had an initial capacity of 100,000 Mcf per day.

Northern Natural Gas Company was formed by the United Light and Railways Company, Lone Star Gas Corporation, and North American Light and Power Company. The com-

pany was organized to transmit natural gas from Hugoton and Texas Panhandle fields to Omaha, Nebraska.

More than 40 associated companies were organized into United Gas Corporation, serving an area with a population of 1,800,000 and owning approximately 5,700 miles of transmission, distribution, and field pipelines.

1931

Memphis Natural Gas Company contracted to build its supply lines through western Tennessee area and sell natural gas to West Tennessee Gas Company.

Natural gas was introduced by The Gas Light Company of Columbus, Georgia, in April, with approximately 4,000 customers being served.

1935

Experimental cycling operations were first put into effect in the Bib Lake Field, Texas.

1936

Carthage Field, Texas, was discovered; five years later, only five wells had been completed.

1938

The first commercial gas cycling plant began operations in Agua Dulce Field in southern Texas. This was the first real attempt to recycle natural gas as a conservation measure.

1943

Arkansas Western Gas Company completed the discovery well in White Oak Gas Field.

1944

Tennessee Gas Transmission Company began delivery of natural gas through a 1,265-mile pipeline from Nueces County, Texas, to West Virginia.

1945

South Atlantic Gas Company was organized on March 2. The properties included were those at Savannah, Georgia; St. Augustine and Orlando, Florida.

1946

As a result of forward looking planning during the war-years, a revised constitution and by-laws was adopted by Southern Gas Association and a permanent office with a full-time managing director was established. At the Galveston Convention, in March, Dean A. Strickland was elected the first president to conduct the affairs of the Association in accordance with the revised constitution and by-laws. Others instrumental in planning for an expanded Southern Gas Association were Frank S. Kelly, Jr., Frank C. Smith, Chester L. May, W. Lee Woodward, W. H. Ligon, Seward Abbott, C. H. Zachry, J. H. Warden, C. L. Trevitt, H. N. Oldham and Clayton L. Nairne.

Natural gas was distributed in Nashville, Tennessee, for the first time.

1947

El Paso Natural Gas Company began supplying California with Texas natural gas upon completion of its 1,200-mile pipeline from the Hugoton-Panhandle Field to Santa Fe Springs, California.

Texas Eastern Transmission Corporation, incorporated on January 30, was named the successful bidder for the Big Inch and Little Big Inch Pipe Lines offered for sale by War Assets Administration. The bid was $143,127,000. The company took possession and began natural gas operation of the lines on May 1.

Gas service was restored to Texas City within five hours after a devastating explosion on a ship tied to a dock. Houston Natural Gas Corporation received wide acclaim for its diligence in handling the situation.

1948

The Supreme Court of Texas ruled that the Railroad Commission of Texas had the power to prohibit, as a conservation measure, the production of oil, unless the casinghead gas was utilized. As a result of this decision, billions of cubic feet of gas which would have been wasted are now being utilized or reinjected into the reservoir.

Texas Gas Transmission Corporation was organized in the merger of Memphis Natural Gas Company and Kentucky Natural Gas Corporation. The following year, a pipeline was laid from eastern Texas to Ohio.

1949

Transcontinental Gas Pipe Line Corporation began construction on its 1,840-mile line from Hidalgo County, Texas, to New York.

Texas Public Service Company merged with Southern Union Gas Company.

1950

One of the first 30-inch pipelines was completed by El Paso Natural Gas Company, from Quartzite to Topock, Arizona.

The Arkansas Western Gas Company completed its discovery well, the Arkansas Western No. 1, in the Lone Elm Field, in Franklin County, Arkansas.

1951

Piedmont Natural Gas Company, Inc. was organized to acquire the manufactured gas plants and distribution systems of the Duke Power Company located in eleven cities in the Piedmont Carolina area, converting to natural gas.

Mississippi Valley Gas Company was organized to acquire and operate substantially all natural gas properties of Mississippi Power and Light Company. The following year, contracts were signed for the purchase of these properties and Mississippi Gas Company.

1952

Possibly for the first time in the gas utility field, two top-executives of the same company were chosen to serve as heads of the Nation's two largest gas associations: Frank C. Smith, president of Houston Natural Gas Association, was elected president of American Gas Association; John H. Wimberly, executive vice president, was elected president of Southern Gas Association.

1953

Railroad Commission of Texas stopped production in the Spraberry Field until arrangements are completed for the conservation of natural gas produced with oil. The Commission found that 220,000,000 cubic feet of gas was being flared daily.

Gourmets Approve Commercial Cooking in New

by John D. Haverkamp

Commercial Supervisor
New Orleans Public Service, Inc.

IN NEW ORLEANS, commercial cooking essentially means cooking with gas. This is naturally so, since New Orleans has been using gas practically from the time gas first was available commercially in the United States.

John D. Haverkamp

The first gas company in this country was chartered in 1816. Shortly thereafter, in 1835, James H. Caldwell founded the first gas company in New Orleans and built the original plant for manufactured gas, a plant which remained in operating condition until a few years ago.

From 1835 until 1928, when natural gas was introduced in New Orleans, the plant furnished the city with a reliable supply of gas. Even after 1928 the plant was kept in operating condition. Converted to a high-Btu content oil gas, its product mixed with natural gas relieved several tense situations brought on by unusually severe cold weather, and occasional trouble with the one pipeline which originally carried the entire natural gas supply from wells several hundred miles away.

With the development of natural gas fields within the immediate vicinity of New Orleans and the installation of three points of entry into the city, the need for a standby manufactured gas plant was eliminated. The best testimonial to its effectiveness is that not once has there been a city-wide gas outage from the time manufactured gas first was used in New Orleans.

Originally, gas was used primarily for lighting, a field which now belongs to the electric industry. The use of gas as a cooking fuel was demonstrated as early as 1832 and, in 1835, natural gas actually was used for commercial cooking in Fredonia, New York.

However, many years had to elapse from these early dates before gas became the main cooking fuel, the position it occupies today. The supreme position that gas, as a cooking fuel, now holds is a tribute to the continued teamwork of the gas equipment and appliance manufacturers, dealers, utility, pipeline and well operators.

It is a tribute to the untiring efforts that team has exerted through the years to furnish the restaurant and hotel operators with the best fuel and the best equipment that civilization has ever known.

Research continues by the manufacturers and by American Gas Association to advance even further in equipment performance, convenience, and safety.

The first real impetus for commercial cooking with gas occurred in Philadelphia in 1876, when several types of ranges were exhibited at the Centennial celebration in that city.

Continued improvements were made and, in 1913, thermostatic oven heat control become a reality. This development—along with better insulation, improved burners, and streamlined designs—has captured the commercial cooking market for the gas industry.

In New Orleans, until about 1890, the major commercial cooking fuels were coal and wood. Manufactured gas gradually replaced these fuels and was itself replaced by natural gas. Today, practically all cooking, residential as well as commercial, is by natural gas. This is also true of water heating.

The influence of natural gas in increasing customer-acceptance of gas as a fuel, is best illustrated by these figures: in 1925, manufactured gas sales totaled 2,427.8 MMcf in New Orleans. In 1930, two years after natural gas was introduced in the city, 12,560.4 MMcf were sold. In 1952, sales amounted to 39,405.5 MMcf.

Through its history, New Orleans has been under Spanish, French, Confederate and United States administration. Its early inhabitants were largely of French and Spanish ancestory, and from the mixture of French and Spanish blood the well-known "Creole" originated.

The cuisine of the better restaurants and hotels in the city reflects the ancestry of New Orleans. Creole and French dishes, cooked to perfection with the help of natural gas, are a treat not to be overlooked.

However, the well-earned reputation

Art and workmanship are blended in the impressive outer-gates to Arnaud's, above, and reflect the appreciation of the founder, the late Count Arnaud Cazenave, for fine ironwork and, from his kitchen, fine food. This gas-equipped kitchen, left, is credited with a high place in the excellent preparation of foods.

New Orleans... Where They All Cook With Gas

The delicate lace-like iron work, typical of architectural decoration in the older sections of New Orleans, is shown to excellent advantage in the light-and-shade at Antoines, left. In the busy kitchen, below, gas and gas equipment are showing their advantages.

of New Orleans' eating establishments rests not only on its Creole-French restaurants. Name the type of cuisine you prefer and New Orleans can show you where it may be eaten in comfortable surroundings, prepared by chefs unexcelled in the art of good cooking. Many excellent restaurants feature Italian, German, Mexican and American food.

The gourmet will have no difficulty in finding the dishes he prefers and will revel in new taste delights. His enjoyment, however, will be well shared by any who merely appreciate fine food, served in a pleasant atmosphere by people whose life work is dedicated to that purpose.

The present proprietors of New Orleans eating places in many instances are carrying on the traditions of their forebears to as far back as five generations.

Information on most of the better-known restaurants and hotels follows. This can be used as a reminder by those already acquainted with the pleasures of New Orleans cooking, and as a guide by the uninitiated.

ANTOINE'S—713 St. Louis St. Roy L. Alciatore, the proprietor, is the grandson of the founder, Antoine Alciatore, who established the restaurant in 1840. This is the home of the 1840 Room, Rex Room and Mystery Room. Among the taste treats are: *Oysters Rockefeller* and *Pompano en Papillote*.

Natural gas is used for the ranges, cooking ovens and broilers, coffee urns, bain marie and water heater. In the words of Mr. Alciatore "Gas is the perfect fuel. We like it."

ARNAUD'S—813 Bienville St. The owner, Mrs. Germaine Cazenave Wells, is the daughter of the founder, the late Count Arnaud Cazenave who, in 1920, established the restaurant. It is the home of the Royal Court Room, The Count's Banquet Hall, and The Irma Room. Specialties include: *Oysters Bienville a la Arnaud* and *Supreme Volaille en papillote*.

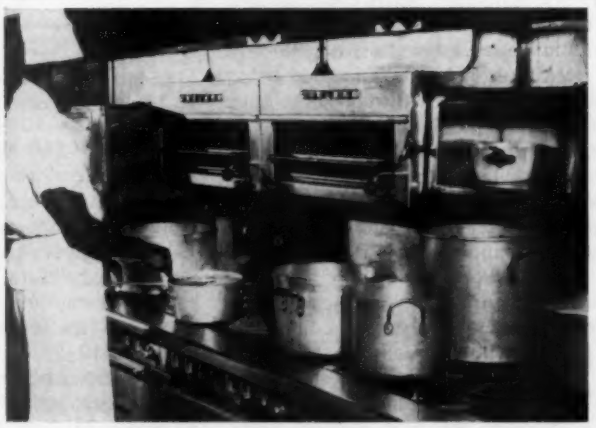
Gas is used exclusively for the ranges, cooking and baking ovens, broilers, deep fat fryers, coffee urns, toasters, roll warmers, steam tables and water heaters. Mrs. Wells states "We specialize in Creole and French cuisine. The perfection of our food is materially helped by our use of the perfect fuel—natural gas."

COMMANDER'S PALACE—1403 Washington Ave. Founded in 1880, the present proprietor is Frank Moran. Specialty dishes are: *Stuffed Flounder* and *Soft Shell Turtle Stew*.

Gas is used for the ranges, cooking and baking ovens, broilers and deep fat fryers, water heaters, bain marie and

(Continued on page 59)

The lacy ironwork also is part of the exterior decor of Restaurant de la Louisiane. Inside, charm and elegance combine with gas-prepared foods for eating that is eventful.



There's an air of satisfaction about the genial chef at Commander's Palace as he depends upon modern gas equipment for the ultimate delicacy of his soft shell turtle stew.

United Gas Tells Gulf South

A FEW WEEKS AGO a card with the simple address, "Gulf South, Shreveport, La.", bearing the post mark of a Kansas town, was delivered without delay to the United Gas office in the Louisiana city. While not unusual, nor perhaps unexpected, this unerring accuracy on the part of Uncle Sam's mail handlers may be considered just another example of the close association that exists between the term *Gulf South* and the name of the world's largest handler of natural gas—United Gas Corporation and its subsidiary companies.

United Gas in 1953, is now in its fifteenth year of continuous advertising in national publications telling the story of the growing, bustling Gulf South—the area in which the company operates.

The story really begins back on June 26, 1939, when key executives of United Gas Pipe Line Company attended an industrial development conference at the headquarters offices, then located in Houston. At that time, N. C. McGowen, president of the company, unveiled plans for United to launch a new campaign in its role as a good citizen of the territory where the company operates. The individual and collective responsibilities which United employees and the company as a whole had assumed in cooperative efforts to attract new industrial plants were reviewed with considerable pride. It was pointed out, however, that industries usually had sought out the territory and sold themselves on it without much sales effort on the part of Gulf South residents.

M. C. McGowen

United Gas proposed to do something about that situation—and to do it in an organized way to further interest people in the area. The objective was to tell the advantages of the Gulf South to the people who could and should be interested in expanding their businesses in the new territory, and who had the money to invest in new businesses.

The term *Gulf South* was coined by the United Gas president as the name that best identified and described the area in which the company operates. Geographically, this area includes parts of Texas, Louisiana and Mississippi, extends to Mobile in southern Alabama and to Pensacola in northwestern Florida, and to the International Boundary at Laredo, Texas.

PICTURE YOUR NEW PLANT
...in a Gulf South location
Visualize your new plant in an area where there's pleasant, year-round working climate... where there's an adequate supply of labor... in a land of expanding markets, excellent transportation facilities, ample industrial water, raw materials, electric power.
Visualize your plant, too, with the extra advantage of economical, dependable natural gas service.
Get your new plant into this picture of the busy, growing Gulf South... where agriculture, mineral resources and chemurgic developments are combined in proper proportions to meet all your requirements.
Perhaps we can help you with more details. Write our Industrial Development Director, P. O. Box 1407, Shreveport, La.
UNITED GAS
...SERVING THE Gulf South

Readers throughout the Country and, indeed, the World are familiar with The Gulf South after seeing ads such as this one in mass-circulation publications throughout the past fourteen years.

Program began in 1939

Thus, the *Gulf South industrial development advertising program* was launched in several publications that have a large readership among the nation's industrialists. The first ad, a full-page, was captioned simply "The Gulf South Invites Industry," and appeared in July, 1939, in *Time* and *Business Week*, among other publications.

Since that initial *Gulf South national ad* was published, United Gas has run more than 150 advertisements aimed at the same target of attracting industry to the flourishing area.

Until 1948, the United Gas *Gulf South advertisements* featured the area as a whole. A broad brush was used to paint the industrial advantages of the richest and fastest growing section of the country. In 1948, a finer brush was used to show the advantages of each particular section of the Gulf South served by United, such as East Texas, North Louisiana and Mississippi Gulf Coast.

The 1949 advertising went into even more detail. Each individual community served by United, either directly or indirectly, was mentioned in the advertisement of its respective geographical section.

tory To Industry of Nation

PIN-POINT YOUR NEW PLANT
. . . in a NATURAL GAS Community
Stick a pin in almost any portion of the Gulf South map, and you'll strike a plant location where there are adequate, dependable supplies of natural gas fuel. More than 450 cities and towns in the Gulf South obtain natural gas from the pipe lines of United Gas—and every one offers significant advantages to YOUR new plant.
This is the bustling, busy, building frontier where American industry has placed one-sixth of all new plant construction since 1945. You, too, will join the movement to the Gulf South if you will investigate its possibilities. And if fuel is a problem, consult our Industrial Development Director, P. O. Box 1407, Shreveport, Louisiana.
UNITED GAS
. . . SERVING THE Gulf South

Natural gas is featured in some of the United Gas ads—not all. But, the industrial advantage of "dependable . . . economical natural gas" are always included in the regionally-conscious copy.

Wide local values in program

Full advantage was taken of the localized and area public relations aspects of the series of ads. A few months prior to publication of each advertisement, United staged merchandising programs in each community to be publicized. This was done through local managers or representatives from district, division or general headquarters offices of the company. United Gas representatives appeared at civic club luncheons, called on local governmental official and business men of the communities, or wrote letters to prominent citizens who could not be contacted in person. They gave advance notice of the appearance of the ad, told of the *Gulf South program* and distributed advance prints of the scheduled advertisement. Window and counter displays were set up in local United Gas offices.

It was felt by United Gas management that the merchandising program gave local company people additional opportunities to get out and talk with their customers and fellow citizens. As a part of this philosophy of localizing the national advertising program as much as possible, each newspaper was provided with a localized news release several weeks prior to publication of the ad mentioning the community in which it was located. Many of the small communities never had been publicized before in the nationally-read publications.

Considerable editorial comment was received because industrial development has become a leading project of communities throughout the Gulf South. Some newspapers reprinted the ad mentioning their communities, and one town scheduled a page advertisement opposite that of United Gas in one of the national publications.

Advertising merchandised locally

Throughout each succeeding year, United has merchandised the national advertising campaign within the Gulf South by sending reprints of various ads to thousands of leaders throughout the area.

Emphasis in the advertising program was changed during the past two years by using some of the astounding statistics to show the tremendous growth of the Gulf South and to continue to tell of the advantages awaiting industry in this rapidly-expanding industrial area.

Although they point to no major credit for the industrial growth, the advertisements stressed that, during the years since World War II, private industry invested one out of every six of its construction dollars in the Gulf South. In addition, the 1950-51 ads pointed out the Gulf South has been selected as the location for nearly one-fourth of all proposed industrial construction announced today. Last year's series emphasized the availability of natural gas, as well as other important and abundant resources that make the Gulf South attractive to industry.

It is contemplated that the 1953 series of advertisements again will feature more localized copy and illustrations and will offer the further advantage of intensive merchandising within the Gulf South area.

One of the principal features of this year's campaign is that prospects for industrial locations will be urged to write directly to officials of the various towns named in each advertisement. This year's series of advertisements will appear in *Time, Newsweek, U. S. News & World Report, Business Week* and the *Wall Street Journal.*

United views broad returns

The management of United Gas frankly states that it is not opening its heart and pocketbook with no thought of return on the investment in its *Gulf South advertising program.* By helping develop and improve the economic con-

(Continued on page 63)

Construction Throughout The South

AN April survey of the 14 states within Southern Gas Association's area reveals among other things that:

1. Year-round or "packaged" air conditioning is now installed chiefly in higher-priced residences but is edging into the lower-priced brackets and seems to have a tremendous future in the residential, commercial and industrial fields.

2. So-called modern or contemporary architecture, simple in appearance and economical in cost, has swept the south.

3. The utility room at ground-floor level, for such appliances as house heating plants, washing machines, dryers, ironers, is pushing basements and partial basements out of the picture, making use of the increased compactness of present-day appliances.

4. There is a great surge in school construction.

The survey, including only the Southern Gas Association area, was made through the observations and questions of strategically-placed Southern members of the construction news division of F. W. Dodge Corporation, which has news bureaus in 71 cities of the 37 states east of the Rockies.

It is just a matter of time, in Oklahoma, until year-round air conditioning reaches into homes priced as low as $10,000, B. W. Querry reports. At present, he says, it is chiefly for homes costing $15,000 and up. Dixon T. Gaines Jr. reports that the package air conditioning industry expects to make installations in all new homes within 6 or 7 years.

New Orleans is placing packaged units in houses costing as little as $12,000, according to S. J. Kupecky. But most other areas mention $15,000 to $20,000 to $25,000 as the low ends of bracket.

Denton C. Norris reports that in Kentucky, there is indication of manufacturers aiming at the lower price brackets for package air conditioning.

One of the striking similarities among many of the reports is the picture of the boom in school construction, buildings of different and improved design are characteristic. Mack Harmon reports that Georgia is now in a $300-million school building program.

KENTUCKY—by Denton C. Norris, Cincinnati—*Map Area E*

Industrial expansion in Kentucky has been notable so far this year. It continues a program that has been in progress about 10 years. This covers a broad range from the heaviest of production, such as for steel, to lighter goods, such as appliances.

Installation of gas transmission lines continued, bringing gas to many areas that did not have it before.

One of the most noticeable trends in architectural design is in the school field. Many architects are very partial to one-story schools with classroom entrances from the outside, relieving the flow of traffic through interior halls.

Larger kitchen and dining areas are popular in residences, allowing greater family use of this space. Another recent development is the extensive use of dry-wall construction in lower-cost residences.

There is a definite trend toward the basementless house, having utility rooms for appliances. Since this is an economy measure, it is chiefly in lower-priced residences; generally those under $15,000.

Year-round air conditioning is mostly considered only for higher-price residences. However there is indication of manufacturers aiming at the lower brackets.

GEORGIA: The Southeast—by Mack Harmon, Atlanta—*Map Area D*

This area is in a great boom of school and church construction. It is strikingly clear that much greater attention is being given than ever before to the design of schools, not only with regard to exterior appearance, but to the basic functions of the school building.

For the most part, the schools are one story without basement, being long and low in appearance, with considerable glass for natural lighting. They are built so that that can be expanded without disturbing classes. The great attention that is being given to design is based on the fact that Georgia is now in a $300-million school building program.

As to churches, almost every denomination has been on a building spree, and there are churches in and around Atlanta that are show-pieces. The boom also is bringing with it better-type homes.

A few sub-divisions have started with complete air conditioning, with the lowest price at $15,000. Various builders are talking about home air-conditioning, so apparently this is a new trend.

The situation regarding basements remains about the same, with expensive houses having them; less expensive houses having either a partial or no basement.

OKLAHOMA—by B. W. Querry, Oklahoma City—*Map Area J*

With the growing strength of the package winter-and-summer air conditioning unit, it is just a matter of time until it reaches into homes costing as low as $10,000. At present, it is associated with the $15,000-and-up price scale.

The trend away from basements and partial basements in this area has been so marked that it is now seldom that one is included in a new home. Utility rooms with compact appliance units have replaced basements in homes selling at $18,000 and up.

Architects say that so-called contemporary design is now predominant, because its simplicity brings lower costs.

The most active construction classifications are non-residential, as has been shown by the Dodge figures. Schools are being built at a high rate and there is great need

CONSTRUCTION IN THE SOUTHERN STATES
January-Through-March—1952-53
($000)

State	Residential		Non-Residential		Total	
	1953	1952	1953	1952	1953	1952
Alabama	15,115	22,427	12,802	13,341	27,917	35,768
Arkansas	5,890	7,210	6,142	14,220	12,032	21,430
Florida	87,331	76,744	31,597	25,393	118,928	102,137
Georgia	36,394	38,815	42,108	30,165	78,502	68,980
Kentucky	28,611	18,447	17,261	8,916	45,872	27,363
Louisiana	25,102	30,160	23,130	77,851	48,232	108,011
Mississippi	5,585	4,667	7,168	8,415	12,753	13,082
N. Carolina	12,827	31,367	24,199	23,518	37,026	54,885
Oklahoma	18,381	25,395	33,494	21,297	51,875	46,692
S. Carolina	11,491	18,376	16,090	9,467	27,581	27,843
Tennessee	30,464	54,968	24,320	22,361	54,784	77,329
Texas	139,430	110,715	80,395	106,177	219,825	216,892
Virginia	39,443	43,185	39,579	23,090	79,022	66,275
Total	456,064	482,476	358,285	384,211	814,349	866,687
Change	—6%		—7%		—6%	

Table courtesy of F. W. Dodge Corp.

ncludes Vast Gas Sales Potentials

for more. Industrial and commercial construction is strong. There is a notable growth in shopping centers.

NORTH CAROLINA—by J. G. Bullock, Greensboro—*Map Area B*

Year-round air conditioning in commercial and hospital buildings is regarded as a necessity in the lower-altitude areas of North Carolina, and is being installed regardless of price bracket. The same is true for the higher-priced mills and manufacturing buildings. But only the higher-priced homes have air conditioning today.

For about six years the trend has been away from partial basements toward utility rooms with extremely compact equipment.

The most noticeable trend, architecturally, is toward simple and direct contemporary style with little ornamentation.

Non-residential construction has been going strong, especially commercial. New shopping centers and tourist courts are much in evidence. Residential construction has declined, but owner-occupied residences and large residences are on the increase. There is a definite increase in private construction.

MISSISSIPPI—by James R. Jones, Jr., Jackson—*Map Area G*

The most noticeable trend in Mississippi now is that of a boom in plant construction. Also the high volume of new school construction to equalize the school status between the white and colored peoples.

Architecturally, the most striking trend is toward low, long structures whether in residence, school or office building.

In homes, there are more and more utility rooms with extremely compact appliances, but these are usually in homes of $20,000 and up. There are practically no houses built in Mississippi with basements.

Year-round air conditioning here is thought of only for homes costing more than $25,000.

VIRGINIA—by T. S. Phoebus, Richmond—*Map Area A*

The outstanding features here are the decline in project housing, except in the Tidewater defense areas, and an appreciable decline in owner-occupancy houses under $15,000.

A slight increase in awards is noticeable in houses of $25,000 and up. Acute needs for housing seem to have eased except in the defense areas. Home buyers and builders are demanding a much wider range of types and designs. Commercial and industrial projects are on the rise.

Architect-designed homes built for owner occupancy, are tending toward functional design. But the traditional period design remains the most popular both among owners and mortgage firms. Some modified modern design features are noticeable among homes built for sale, but here the emphasis is chiefly on space, cost and standardization.

There is a strong trend away from basements and part-basements. Only about 25% of houses being built in this area have basements, and they are mostly houses of $15,000 cost and up. Utility rooms are being used in a fair percentage of larger homes, due to improved compactness of heating equipment and systems. They are almost universal in smaller homes, excepting those using floor or wall furnaces or similar equipment.

Year-round air conditioning is still confined largely to the higher price brackets, but is beginning to make some headway in the medium-price field.

SOUTH CAROLINA—by Sam L. Roach, Columbia—*Map Area C*

The most conspicuous fact about construction now in South Carolina is the great boom in schools, just now getting well under way. Residential building is on the decline, especially speculative building. Prospective buyers show a tendency to wait in the hope and belief that prices will drop.

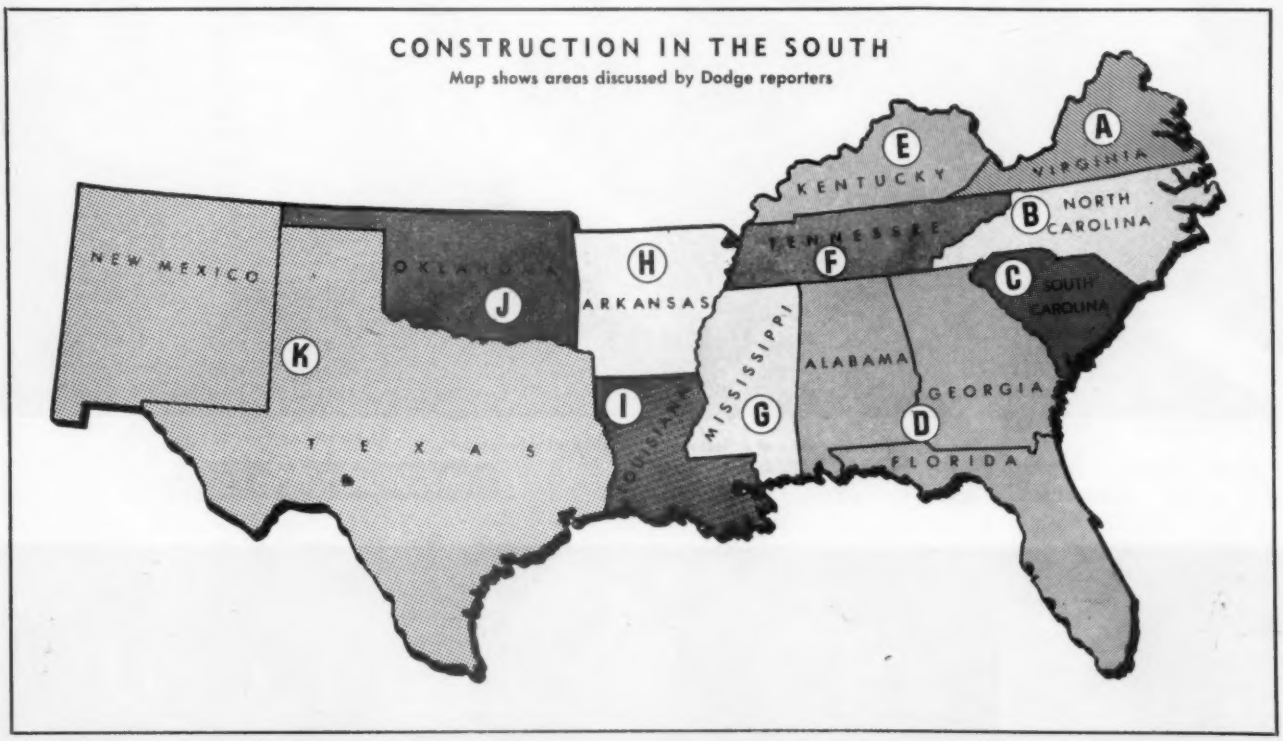
The large speculative projects have just about stopped, with most builders putting up small groups only and selling those before erecting more.

The most noticeable architectural trend is toward modern and functional designs, especially in schools. Little ornamentation is used. Multi-purpose rooms are on the increase to save on costs.

Partial basements are in a definite decline. Most residences costing $15,000 or more use horizontal-type warm-air heating systems. Less expensive homes, and especially those put up by speculative builders, use floor furnaces. Year-round air conditioning is chiefly for houses in the $20,000-and-up bracket.

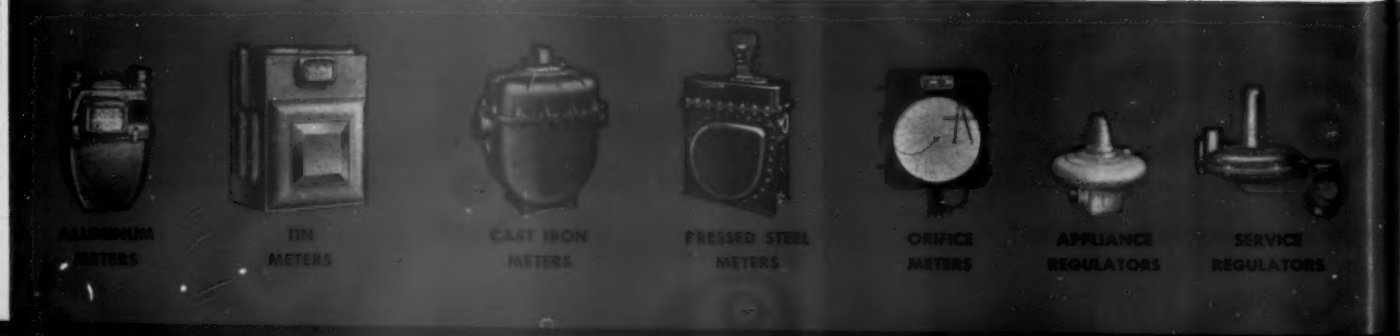
Most architects and contractors think there will be a levelling off period in con-

(Continued on page 58)



Where New Products Are Born . .

Interior view of a Rockwell plant physical laboratory



Existing Products Improved

WHAT THE ROCKWELL PROGRAM OF RESEARCH AND DEVELOPMENT MEANS TO YOU

Exterior view of a recently completed Rockwell research laboratory in East Chicago, Indiana

The Rockwell Research and Development Department is one of the most important, if not *the* most important, in the whole scope of company activity. It is the foundation on which new products are developed and old products are modernized and continually improved.

Rockwell maintains completely equipped, competently staffed laboratory facilities at all principal plant levels. For pure research beyond the scope of industrial laboratories, Rockwell supports full time fellowships at Mellon Institute and Southwest Research Institute. Men nationally recognized in the fields of physics, chemistry and metallurgy head these operations.

This intensive program of research and development is dedicated to you, our customers in the gas business. From it you gain the benefits of equipment that returns a greater measure of performance value. This is just another Rockwell expression of confidence in the future of the gas business—a confidence that you can share in your own operations.

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Control of Dust in Distribution Systems

by John H. Glamser
Oklahoma Natural Gas Co.

BEING from Oklahoma, I am quite familiar with dust storms and the havoc which they have wrought. Unfortunately, pipeline dust of some kind and of some magnitude is found in pipelines wherever gas flows. Regardless of whether this foreign substance in our pipelines is metallic dust, silica, naphthalene, gums, sulphur compounds, tars, or oil vapors, it is necessary to condition the gas which we sell to a degree necessary for use in the automatic appliances of today.

This problem of foreign material in our pipelines must be analyzed from the standpoint of three different types of companies. First, the manufactured gas company; second, straight natural gas companies; and third, those gas companies who have converted either fully or partially to natural gas.

In the manufacture of gas, whether it be coal or coke gas, water gas, or oil gas, certain by-products are made along with the gas. These products include tar, tar oil, ammonia, gums, naphthalene, hydrogen sulphide, and oil vapors. Even though the majority of these by-products are removed from the gas before it enters the holder or the distribution system, a certain amount of these products was, and is, naturally carried along with the gas.

These substances in manufactured gas have some beneficial effects such as coating the interior of the main, thereby preventing oxidation and rust formation and has the effect of keeping packings and cast iron joints wet, thereby preventing leakage, but there are also certain detrimental effects of these by-products. Tars and gums have a tendency to build up in the distribution system, thereby restricting flow, and it has been necessary to remove lines from service in order to remove these deposits. Also, as this gas is saturated with water vapor, it is necessary to install drips to collect the excess moisture. Gum deposits build up in pilot valve openings and burner openings throwing them out of adjustment.

These conditions have been greatly improved by better methods of removing tar and tar oils, naphthalene and gums from the gas prior to its entrance into the gas holder or distribution system.

Dust is largely iron oxide

Analyses of dust samples taken from various natural gas transmission and distribution pipelines show that from 80 to 90% of the dust samples were iron oxide. This iron oxide was found to be either mill scale or oxides formed by the rusting of the pipe. Mill scale is generally black in color, while oxides formed by rusting vary from reddish brown to black.

Physical characteristics of dust particles show that the size ranges from approximately .0001 of an inch in diameter up to a visible size. From microscopic inspection, the majority of particles seem to range from .0005" to .001". Most of them are flat, jagged-edge shapes, although some globules have been observed. These globules were probably caused by welding operations.

To prevent dust from entering our distribution systems, it is necessary to control or prevent formation in transmission lines.

Additional amounts of rust can be attributed to the fact that much pipe has been exposed to the atmosphere while in storage. Construction dirt is also a major cause of dust problems.

Sources of natural gas pipeline deposits may be summarized as follows: mill scale; internal corrosion of the pipeline system; well sand; and construction dirt.

Effects of dusty gas

The effects of dust-contaminated gas are felt in several different ways. Large dust concentration in high velocity lines occasionally renders regulators inoperative by abrasion of the valve seats, thus preventing complete shut-off and causing poor control. High dust concentration can also slow orifice measurement by abrasion of the orifice discs, or by building up a deposit of dust on the up-stream side of the disc, which results in more streamlined flow in either case and, consequently, in low measurement.

Large quantities of dust affect positive meters by increasing wear of the diaphragms or by increasing the frictional resistance in the moving parts. It is quite possible for distribution mains and services to become either partially or completely clogged with dust. This not only seriously affects the efficiency of the pipelines, but service and house lines as well.

Domestic appliances are seriously affected by large quantities of dust; pilot lights are sometimes completely stopped and burners are quickly thrown out of adjustment. One of the greatest dangers in complete or partial stoppage is the possibility of an explosion. The adverse effects of dust are greatly increased due to the fact that dust particles are so fine that they can be carried, suspended in the gas, for long distances and that rapid changes in rates of flow or direction of flow can cause heavy concentrations of dust.

Another example of how dust can complicate an already difficult situation is in the case of "gas outage" or extremely low pressures of distribution systems or areas of such a system. After all consumers' meters have been turned off, and the cause of the outage discovered and repaired, the gas turned back into an empty distribution system will often stir up dust which has lain dormant for years and ultimately carry it to consumers' appliances. This is caused by the increased velocities in the lines, and is another reason for interconnection of the distribution mains.

The tying together of dead end lines and other lines may often cause reversal of flow, which is almost certain to cause dust trouble.

Methods of elimination

Now, how do we propose to eliminate dust from our natural gas pipelines?

It would seem reasonable that if the sources of dust could be eliminated, at least part of our trouble would be over. Since the first source is the transmission system, the insertion of dehydration clauses in gas purchase contracts is a step in the right direction.

The installation of company-owned and operated dehydration plants at various points, together with systematic scheduling of dew point determinations, is also a necessity in keeping the dew point of the gas at a respectable level.

The blowing and pigging of both new and old transmission lines, as well as those distribution feeder mains that can be so worked are very effective methods of removing dust which has already formed and accumulated.

In some isolated cases, it is possible to clean distribution lines by blowing and pigging the line. In most cases, however, it is either not practical to take the line out of service; not safe to blow or pig the line; or not possible to prevent the dust removed from the line from having a damaging effect on surrounding property.

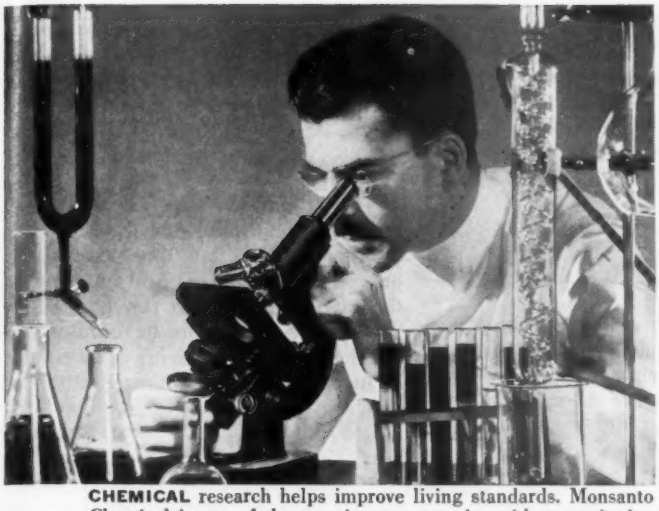
As to the removal of dust which has already accumulated, there are a number of possible points at which this can be done as follows:

1. At intermediate points on the transmission system.
2. At city border stations.
3. At distribution plant district regulator stations.
4. At meters or customer services.
5. At appliances.

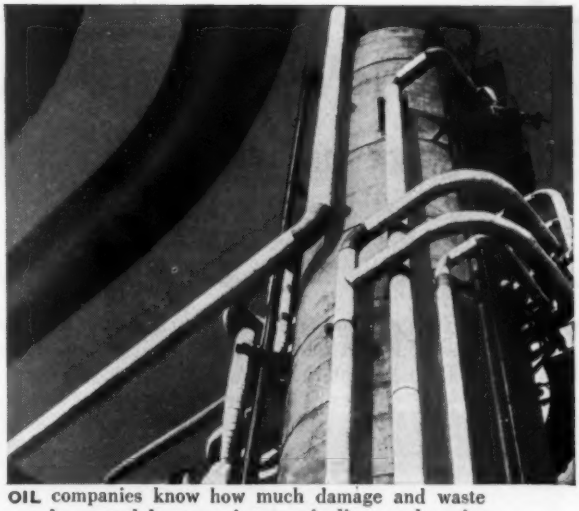
It is also necessary to remove dust from gas which is to be injected into underground storages, and it is often necessary to dehydrate gas withdrawn from storages. Due to the rapid wearing of cylinder walls, piston rings, and packings, it is necessary to remove dust prior to compression.

Each of these locations has its relative advantages and disadvantages. Based on the hypothesis that most of the corrosion is confined to the transmission system, it would seem that the removal of dust at intermediate points along the transmission

(Continued on page 64)



CHEMICAL research helps improve living standards. Monsanto Chemical is one of the prominent companies with a continuing research program. Monsanto is also one of the companies EBASCO has been privileged to serve with engineering and market study services.



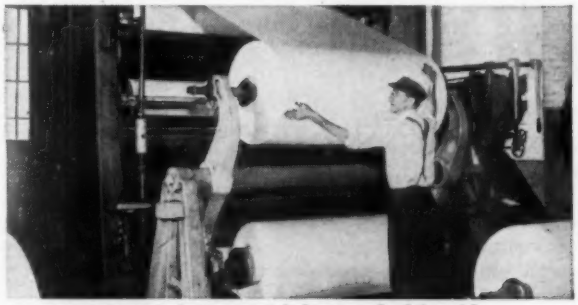
OIL companies know how much damage and waste can be caused by corrosion to pipelines and equipment. EBASCO has served Trans-Northern Pipe Line Company of Canada through corrosion surveys and application of various methods of corrosion control.

MANY DIFFERENT INDUSTRIES SOLVE INSIDE PROBLEMS WITH OUTSIDE HELP

Modern industrial expansion often creates special situations that demand special services. That's where EBASCO is able to assist many kinds of businesses and industries across the nation and around the world.

EBASCO keeps its services in step with the times. They are geared to meet the exacting requirements of today's new processes, new technologies, new horizons. Such knowledge is a must in serving industries like those shown on this page.

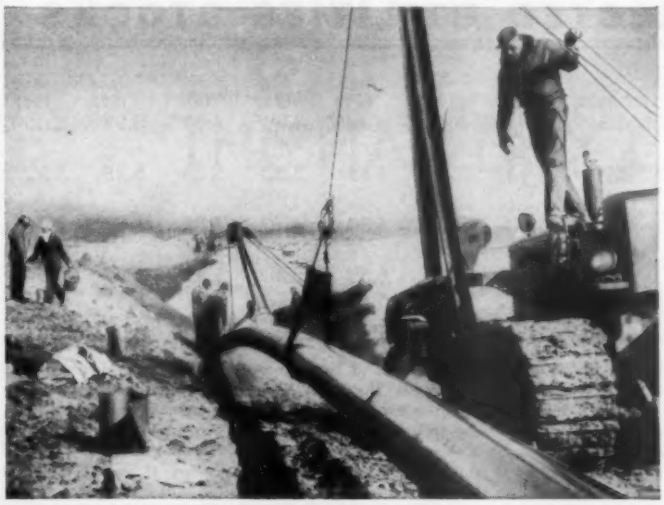
If your business faces a special problem, the services EBASCO offers may well be your answer. Our booklet, "The Inside Story of Outside Help," describes these services. May we send you a copy? Just write or phone Ebasco Services Incorporated, Dept. S, Two Rector Street, New York 6, N. Y.



PULP & PAPER industry growth has resulted in wide expansion of production facilities. Rayonier Incorporated, a leader in the industry, engaged EBASCO to design and construct its $25,000,000 chemical cellulose mill in Jesup, Georgia.

STEEL plant under construction at Owensboro, Kentucky. The design and construction is being handled by EBASCO for the Green River Steel Corporation. This plant is scheduled for completion this year.

GAS pipeline of the East Tennessee Natural Gas Co. under construction. This pipeline, now in operation, carries natural gas from Greenbrier, Tenn., to the Atomic Energy Plant at Oak Ridge. EBASCO was engaged to handle the entire project from preliminary planning to "in service" operation.



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Vigilance is Watchword of Lenders and Borrowers as Interest Continues Climb

by John F. Falvey

Financial Editor

TIGHTENING of money rates has become more manifest during recent weeks, with the result that new issues of high grade utility bonds which recently came to market required 13 points greater interest yield than similarly graded issues carried just four weeks earlier.

John F. Falvey

This raised the yield on high grade utility loans to more than 25 points above the level which prevailed at the end of 1952.

Bonds have not been alone in the interest raising classification. Bank loans to investment firms were raised another quarter point to three per cent in mid-April—reaching a new 20-year high—and finance companies increased their tab on commercial paper by one-eighth of one per cent. And before this edition goes to press banks may lift to 3¼ per cent, from 3 per cent, their prime interest rate on commercial loans. Two reasons are advanced for this expectation; loanable funds continue in short supply, and business borrowings have not gone off in early spring weeks this year as they had in prior years. In the month prior to this writing they receded by only $63 million, compared with a drop of $222 million in the corresponding 1952 period. Unless business borrowings show a belated decline in coming weeks the opinion in most banking circles is that the higher interest rate on prime borrowings surely will come.

Utility companies in early need of new bond money can draw little comfort from the probability that interest rates may not settle down until mid-September, when the United States Treasury has to take care of refunding nearly $8 billion of 2 per cent obligations.

Interest rates on corporate obligations have been adjusting themselves to the 3¼ per cent coupon on the 30-year bonds which the Treasury brought out early in April. The corporate bond market, furthermore, may continue in a state bordering on flux until the big Government issue is taken up. Any guess made now as to the possible Treasury action at that time would be rank conjecture. Much in this respect will depend on the trend of business and of commodity prices in the interim. A rate on the new issue possibly somewhat below 3¼ per cent might be resorted to if economic reaction sets in, but continuance of the 3¼ per cent figure would be a reasonable assumption if speculative buying should be renewed and consumer borrowing increase much beyond its present very high level.

Contributing to the recent increase in interest rates on commercial loans and on finance company paper is the Treasury's tight-fisted credit control policy. This has combined with continuing high corporate money needs to tighten the money market just at the time the utility companies are in the market for a record-breaking total of new money bond issues.

The volume of new corporate and municipal bond issues in the first three months of 1953 was the largest in a quarter of a century. And heading for the market in the next few months are an estimated two score or more of corporate bond issues having a face value of more than $800 million. The bulk of this represents much higher than estimated utility industry needs for funds with which to finance a continuing record-breaking total of property expansion. This huge corporate bond volume will be accompanied by a heavy total of local government borrowings, which for the next month alone are placed at $160 million.

Hope that corporate outlays for new plant and equipment might slacken sufficiently to aid in holding down interest costs is a tenuous one at best, in that it is based on the uneasy prospect of a Korean truce. It is predicated on the assumption that the defense build-up will be lengthened again and that there will be no more Koreas. The first assumption is a possibility, but the second entails considerable presumption. The important item, from the standpoint of further stretch-out of the defense program, is that defense and foreign aid spending together account for the substantial proportion of 15 per cent of this country's gross national product. Quite a sum when measured by any standard.

Investor fears precipitated by anticipated Federal Government retrenchment are reflected in the recent sharp setback experienced by all segments of

(Continued on page 57)

INDEX OF YIELDS : SELECTED UTILITIES STOCKS

	Apr. 1953	Mar. 1953	Feb. 1953	Jan. 1953	Dec. 1952	Nov. 1952	Oct. 1952	Sept. 1952	Aug. 1952	July 1952	June 1952	May 1952
National Gas Transmission Companies	4.18%	4.04%	3.95%	4.04%	4.04%	4.14%	4.48%	4.44%	4.10%	4.01%	3.98%	4.05%
Natural Gas Transmission & Distribution Companies	5.06	4.91	4.91	5.02	4.99	5.14	5.47	5.45	5.30	5.26	5.28	5.32
Manufactured and Mixed Gas Companies	4.73	4.63	4.65	4.87	4.83	5.00	5.04	4.80	4.70	4.89	4.84	5.06
Class "A" Electric Companies	5.14	4.97	5.05	5.08	5.10	5.20	5.40	5.39	5.40	5.49	5.60	5.54
Class "B" Electric Companies	5.06	4.93	5.08	5.19	5.08	5.19	5.47	5.42	5.46	5.51	5.55	5.57

This is a straight arithmetical index of comparative yields obtainable on a selected group of gas and electric utility industry common stocks.

The companies comprising this index have been selected by the AMERICAN GAS JOURNAL as providing a representative cross-section of each industry, from the standpoint of geographical diversification and of the relative importance of the individual companies in their areas.

No effort has been made to weight the average to give effect to changes in capitalization or in dividend rates because the yields afforded on the issues reflect such changes. The index is designed to show the rate of return and not necessarily market movements on the stocks comprising it.

This index is compiled from: natural gas transmission companies, 5; natural gas transmission and distribution companies, 5; manufactured and mixed gas companies, 4; class "A" electric companies, 4; class "B" electric companies, 5.

Leaders in Pipe Line Construction

Hallen pipe gang at work on a major transmission line.

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FEDERAL POWER COMMISSION

Texas Gas Transmission May Sell Gas for Boiler Fuel

A Presiding Examiner has filed a decision, subject to review by the Commission, authorizing Texas Gas Transmission Corp. to construct a meter station for the sale of natural gas to Mississippi Power & Light Company for use as boiler fuel at its electric generating station now under construction near Cleveland, Miss.

The decision limits operation of the facilities to a 10-year period from the date of the first delivery of gas, and sets maximum deliveries at 30 MMcf per day, and not more than a total of 6,959 MMcf annually.

Mississippi Power proposes to purchase for boiler fuel purposes an additional 5,267 MMcf per year from Mississippi Valley Gas Co., an existing firm-customer of Texas Gas. The gas which Mississippi Valley would sell to Mississippi Power would be obtained from Texas Gas. This proposal was not a part of Texas Gas' application.

Northeastern-Tennessee Evidence On Tetco's Supplies Admitted

The Commission has directed that evidence proffered by Northeastern Gas Transmission Co. and Tennessee Gas Transmission Co., relating to gas supplies available to Texas Eastern Transmission Corp. be admitted as part of the record at the hearings on competitive proposals for natural gas service in New York.

Northeastern and Tennessee proffered the evidence with the intention of showing that gas supplies now estimated to be available to Texas Eastern on a system-wide basis are not sufficient to render proposed service to Algonquin Gas Transmission Co., and the service which Texas Eastern is authorized to provide to other customer companies.

Upon objection by Texas Eastern's counsel, the FPC Presiding Examiner ruled that the evidence is not relevant to the issue in the proceedings and refused to permit it to be made a part of the record. Northeastern, Tennessee and the FPC staff counsel subsequently appealed the ruling to the Commission.

The Commission said that it could not ignore the fact that additional evidence as to the supply of gas available to Texas Eastern has been submitted in other proceedings since 1950, and that "We do not believe that the Commission should preclude itself from considering subsequent developments which have in fact been officially made known to it on the records of more recent proceedings. . . ." Accordingly, it seemed appropriate that the evidence in question "be received for such consideration as it may merit in the Commission's determination of the ability of Texas Eastern to render the proposed service to Algonquin."

Natural Gas Companies' Revenues and Income

Operating revenues of natural gas companies reporting to the Commission totaled $236,521,418 in January of 1953, an increase of 19.2% over January 1952 receipts. For the 12 months ended January 31, 1953, revenues aggregated $1,984,954,689, or 18.6% higher than in the 12 months ended January 31, 1952.

Gas utility operating income for January 1953, amounted to $41,884,886, up 14.6% from last year. For the 12 months ended January, 1953, gas utility operating income was $291,607,035, representing an increase of 12%.

Net gas utility plant of the reporting companies aggregated $4,995,143,572 on January 31, 1953, up 12.2%.

Gas operating revenue deductions during January, 1953, amounted to $194,800,517, an increase of 20.2%. Of this total, operating expenses accounted for $142,927,767; depreciation for $16,038,432, and taxes for $35,834,318.

Gas sales to ultimate consumers during the month were 279,471 MMcf, an increase of 7.3% over January, 1952.

Sales to residential, commercial and industrial consumers increased 0.4%, 3.6% and 14.2% respectively, while revenues from the three classes of service increased 6.7%, 9.4% and 25.2%, respectively. Revenues from all sales to ultimate consumers increased 11.8%.

Net income of the companies for January, 1953, was $33,795,590, up 10% from January, 1952. For the 12 months ended January, 1953, net income of $212,546,445 represented an increase of 5.6%.

Texas Illinois to Increase System Capacity by 130 MMcf

The Commission has authorized Texas Illinois Natural Gas Pipeline Company to increase the capacity of its natural gas transmission system from the presently authorized 374 MMcf daily to a new total of 504 MMcf.

The Commission concurrently authorized Chicago District Pipeline Company to enlarge the capacity of its system to enable it to meet increasing requirements of existing customers. Texas Illinois and Chicago District are subsidiaries of The Peoples Gas Light and Coke Company, Chicago.

Texas Illinois will construct six new compressor stations, with a total capacity of 70,000 hp and install a total of 10,000 additional hp at 5 existing stations. The company also will build 5 new lateral pipelines and one loop line, with an aggregate length of 74 miles, extending from its existing main line to additional sources of gas supply. The additional supply will be secured from 8 fields in south Texas—Chocolate Bayou, Fairbanks, East Bay City, West Bernard, Heyser, Hagist Ranch, Amargosa and South East Clayton.

The project also includes a suspension-type bridge supporting two 30-inch lines across the Mississippi River at approximately the point of the company's existing underwater river crossing near Grand Tower, Ill. Total estimated cost of the Texas Illinois project is $42,148,000, including $3,226,000 for the river crossing.

American Gas Fundamentals OUTLINE

NATURAL GAS
- *Geology
- *Drilling and completion
- *Methods of estimating reserves
- *Chemicals from gas
- Natural Gas Conservation

MANUFACTURED GASES
- *Coke oven gas; producer gas, blue gas; carbureted water gas
- *Reformed gas
- *Hi-Btu oil gas
- Interchangeability

LIQUEFIED PETROLEUM GASES
- *Sources, properties and uses

BASIC GAS LAWS
- *Perfect gases
- Supercompressibility

TRANSMISSION
- *Pipe lines
- *Corrosion and pipe protection
- *Compressor stations
- *Gas conditioning
- Flow formulae
- *Principles of orifice measurement
- Pipe coatings and protection methods

GAS STORAGE
- *Methods of storing gas

GAS DISTRIBUTION
- *System design and operation
- *Pressure regulation, part 1
- *Pressure regulation, part 2
- *Leak detection and control
- *Metering
- Measurement and accounting
- *Odorization
- Customer service
- Competitive fuels

GAS UTILIZATION
- *Principles of gas combustion
- Domestic
- Commercial
- Industrial
- *Principles of absorption refrigeration

CONVERSION PRACTICES

MANAGEMENT PROBLEMS AND POLICIES
- *Corporate structure
- *Public utility regulation
- *Public relations
- Theories of rate making
- Rights-of-way

GLOSSARY
- *Ab-to-Ex

***Indicates chapters published since January 1, 1951; available without charge to new subscribers to American Gas Journal.**

How to Use the Material

American Gas Fundamentals *is a comprehensive compilation of basic gas facts to guide any gas utility employee toward a broader understanding of the industry as a whole.*

The series is designed to be removed from each current issue of AMERICAN GAS JOURNAL *and filed in a ring binder where it may be accumulated into a text book of permanent usefulness. Material should be filed under the major subject head appearing in the upper right hand box at the head of each chapter.*

AMERICAN Gas FUNDAMENTALS

NATURAL GAS

A CONTINUING EDUCATIONAL AND REFRESHER COURSE IN GAS TECHNIQUES, OPERATIONS AND MANAGEMENT

Natural Gas Conservation

BOTH natural gas and crude oil, except for impurities, are composed of mixtures of hydrocarbons which are materials composed of the elements carbon and hydrogen. All the hydrocarbons are capable of attaining the three phases of matter, solid, liquid, and gaseous, at certain pressures and temperatures. The hydrocarbon mixtures which are gaseous at most conditions of atmospheric pressure and temperature are known as natural gas; the mixtures which are liquids at most conditions of atmospheric pressure and temperature are known as crude oil or condensate.

A fluid is any substance that will flow, including both liquids and gases. Fluids encountered in hydrocarbon reservoirs range from 99.8% pure methane gas to heavy bituminous material having the nature of road tar or asphalt. All oil wells, however, produce some gas. Gas that is dissolved in oil at reservoir conditions must be produced with the oil but most of it will be liberated at atmospheric conditions. The following discussion will include some aspects of oil conservation due to the close relationship of natural gas and crude oil.

The oil and gas industry was founded on drill-as-you-please and produce-as-much-as-you-can methods. Early writers of articles about crude oil and natural gas production believed that the more wells that were drilled the greater would be the amounts of oil and gas recovered.

Oil and gas, being fluids, are not confined to their original underground location. They migrate for an unlimited distance to producing wells without regard to lease or ownership boundaries.

Prior to the adoption of comprehensive conservation laws by the various states, which began in 1930 with the development of the East Texas field, the law of capture prevailed. Oil and gas, being migratory, were considered to be like wild game and to belong to the person who captured them. When oil and gas were discovered there was a mad rush to drill as many wells as possible in the shortest possible time and to get as much oil as possible to the surface before the pressure was dissipated. No thought was given to the utilization of natural gas.

Relation of Natural Gas to Oil Production

As was explained in the chapter of this series entitled "Natural Gas Reserves", natural gas is segregated into three classes: (1) non-associated gas, which is free gas not in contact with or dissolved in crude oil in the reservoir, (2) associated gas, which is free gas in immediate contact but not in solution with or dissolved in the oil and (3) dissolved gas, which is gas in solution with the crude oil in the reservoir.

The volume of condensate, or hydrocarbons which becomes a liquid at surface conditions, contained in a unit volume of a particular gas is no indication as to how the gas should be classified. All three classifications include both rich and lean gas. The classification of gas must be deferred until drilling has established the presence or absence of an oil band in the reservoir.

When a reservoir has been established as a non-associated gas reservoir, the problem confronting the owners and the regulatory agency is whether to go to market with the gas after it is processed for its liquid content or to return the processed gas to the reservoir.

Only a very careful economic study will answer this question, but in general rich gases should be returned to the reservoir after processing (cycling) and lean gases should be sent directly to market. This is true regardless of whether or not the reservoir has an adjoining water leg which will maintain the reservoir pressure by a natural water drive. Lean gas can expel itself from the reservoir rock by its own ability to expand more efficiently than it can be displaced by water under higher pressure.

When a rich non-associated gas reservoir is produced and the processed gas is not returned to the reservoir, one of two things will happen: either the reservoir pressure will decline or water will encroach.

If the reservoir pressure declines below the dew point, liquid will condense in the reservoir where some of it will adhere to the reservoir rock and never be produced. If water encroaches, 20-to-50% of the rich gas contained in reservoir rock will remain behind encroaching water.

The most efficient way to produce a rich non-associated gas reservoir is to displace the rich gas with lean gas, usually by cycling, until the economic limit of the cycling process is reached and then produce as a lean gas reservoir. Lean non-associated gas reservoirs may usually be produced at any rate dictated by the market-demand for gas. In Texas, of more than 1,000 such reservoirs, *maximum efficient rates* of production have been established for only four reservoirs. These four reservoirs have peculiar water production problems which make the restriction of production desirable. In general, pressure depletion in a lean non-associated gas reservoir will yield a higher ultimate recovery than pressure maintenance by water displacement.

A term frequently heard in the industry is "casinghead gas". This term had its beginning in the very early days. Some operators believing the gas pressure on the casinghead might be detrimental to the productivity of the well, piped the gas a short distance away where it was burned in a *flare*, or used to heat buildings or run engines. This gas became known as "casinghead gas". This term was gradually expanded to include all gas produced from oil wells. The term casinghead gas therefore includes most dissolved and some associated gas but does not include any non-associated gas.

Casinghead gas is a very skillful and always a willing worker so is called upon to do most of the work for its slovenly and incompetent partner, oil. Oil will expand

slightly when the pressure is released, if the pressure is above its bubble-point pressure or will shrink if the pressure is less than that pressure. Bubble-point is defined as the state of a system characterized by the co-existence of a liquid phase with an infinitesimal quantity of gas phase in equilibrium.

Producing the Underground Reservoir

Let us consider the most efficient ways of producing a reservoir containing a gas cap and an oil band. To recover the oil band we must displace it with some other fluid. If the reservoir has a water leg which will provide a natural water drive or if we inject water we can displace 50-to-80% of the oil. We must not permit the gas cap to shrink or oil will migrate into the relatively dry gas cap reservoir rock where much of it will adhere to the rock never to be recovered. We may not produce the gas cap unless we put the processed gas back in the reservoir to maintain the gas cap pressure to prevent shrinkage.

If the reservoir has no natural water drive, and the cost of water injection is prohibitive, we may still recover 40-to-70% of the oil by displacing it with gas from the gas cap. Again, we may not produce the gas cap unless we put the processed gas back in the reservoir. If the pressure is permitted to decline much below the bubble-point pressure much of the gas dissolved in the oil will be liberated. This will cause the viscosity of the oil to increase making it more difficult for the gas to displace it.

In oil reservoirs with original gas caps, the bubble-point pressure is always equal to the original reservoir pressure at the gas-oil interface. The most efficient pressure for the displacement of oil by either gas or water seems to be 15-to-25% below the bubble-point. This permits the right amount of dissolved gas to be liberated to aid in the displacement process but does not permit the viscosity of the oil to increase to the point where it is detrimental to displacement.

In order to displace the oil efficiently, by either gas or water, we must restrict the rate of oil production to the rate of water influx or the rate at which the gas cap can expand. Production at excessive rates will prevent any benefits from the water drive or expanding gas cap and we will obtain only 15-to-35% of the oil band. To obtain the greatest possible recovery of oil and condensate, we must defer the production of dry gas for market purposes until all of the oil and condensate economically feasible to recover have been recovered.

Let us consider an oil reservoir without a gas cap. All the gas contained in the reservoir will be dissolved gas. The oil may or may not contain all the gas it is capable of dissolving, but usually does not. The bubble-point pressure will usually be less than the original reservoir pressure and may be only 5-to-10% of original pressure.

If the reservoir has a natural water drive or if water is injected to maintain the reservoir pressure at a level between 15-to-25% below the bubble-point, a comparatively high ultimate recovery of oil will be obtained. As long as the reservoir pressure is above the bubble-point, all wells will produce with very nearly the same gas-oil ratios and their ratios will not increase or decrease appreciably. When the pressure declines below the bubble point, the gas-oil ratios will first decrease to a minimum and then increase. When the increase begins, no further decline in reservoir pressure should be permitted or a loss of ultimate oil recovery will occur.

If the reservoir does not have a natural water drive, and the cost of water injection is prohibitive, the only fluid available to displace the oil will be the dissolved gas. If we should happen to have a non-associated gas reservoir nearby, we can convert our dissolved gas reservoir into a gas cap expansion reservoir. If not, we must rely on the expansion of the dissolved gas and the action of gravity to move oil to the well bore. If the bubble-point is high the volume of dissolved gas will be high; if the bubble-point is low the volume will be low. If the permeability of the reservoir rock is high, the effects of gravity will be high; if permeability is low, the gravity effects will be low. The lower the bubble-point and permeability, the lower will be the ultimate recovery of oil.

The accompanying figure is a schematic diagram of a reservoir containing oil with a bubble-point below the original pressure. When lean gas is injected into the reservoir it first passes through rock containing heavy residual crude oil. A portion of the crude oil will evaporate and enrich the gas. Gradually, the enriched gas will be dissolved in the crude oil causing it to expand. The expanded oil will displace virgin reservoir oil until the expanded oil front reaches the producing well. The process can be continued until very little residual oil remains and we will then have a non-associated gas reservoir. The higher the injection pressure, the more efficient the process will be. The more the oil expands, the lower will be the amount of stock tank oil left unrecovered.

This process requires a reasonably-uniform reservoir rock or the gas will rapidly channel from the injection well to the producing well without displacing much of the oil. The only hope for tight fractured sandstones, similar to the Spraberry Sand of West Texas, seems to be water injection at rates slow enough to permit a counterflow of oil and water. Two such water injection projects are now in progress in the Spraberry Trend and have resulted in increased productivity of the surrounding wells.

From the foregoing it may be seen that not all gas reserves are available for market at any time. The production of non-associated gas must be deferred if the gas is rich in condensate; the production of associated gas must be deferred until the oil band has been depleted; production of dissolved gas depends upon rate of oil production.

History of Conservation Regulation

The 1893 session of the Indiana General Assembly adopted an enactment making it unlawful "to allow or permit the flow of gas from any . . . well to escape into the open air, without being confined within such well or proper pipes, or other safe receptacle for a longer period than two (2) days next after gas or oil shall have been struck in such well. . . ." Section 2 provided the state with its first regulation for well-plugging. Section 4 stated that upon the failure to plug an abandoned well as in Section 1 of the act, neighbors on adjacent lands might plug the well and recover their costs from its owner.

Section 1, calling for confinement of gas or oil within two days, was tested in a case famous in the annals of the legal history of conservation of oil and gas—State vs. Ohio Oil Company, in which the Indiana Supreme Court upheld the law's constitutionality, and this decision was affirmed by the United States Supreme Court in 1900 in Ohio Oil Company vs. Indiana holding the act a valid exercise of the state police power.

Since 1900, other states have adopted oil and gas conservation laws until now a total of 35 states have such

laws. The laws of the various states differ in many respects but most involve a part or all of:

(1) Control of oil production to efficient rates;
(2) Limitations of producing gas-oil and water-oil ratios;
(3) Control of the volumetric withdrawal as between wells producing from gas, oil, or water bearing areas with the same common source of supply.
(4) Control of well spacing and well density.
(5) Control of drilling and completion practices.
(6) Allocation of production as between separately owned tracts within a common source of supply.
(7) Control of plugging and abandonment practices.

Space will not permit discussion of the growth of conservation laws in the 35 states having them, but as Texas has 52.9% of the Nation's gas reserves, the laws of Texas will give a reasonably-complete understanding.

The Texas statutes and the orders of The Railroad Commission of Texas involve all the foregoing controls, limitations and allocation.

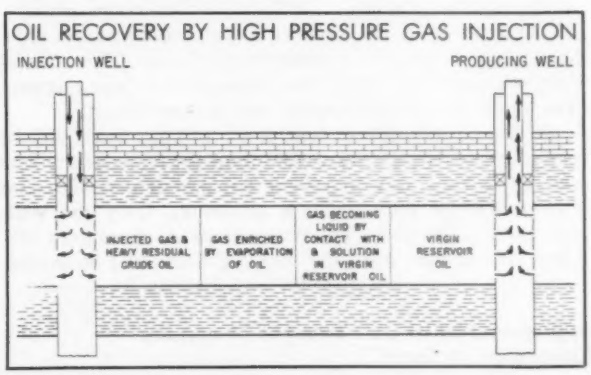
The first statute regulating the production and use of natural gas in Texas was enacted in 1899. This statute required gas wells to be shut-in within 10 days after penetrating the gas-bearing rock until the gas could be utilized for light, fuel or power.

The detailed development of regulation of production and use of natural gas did not begin until after the tremendous Panhandle Field was brought in. This field is approximately 124 miles long, with an average width of approximately 20 miles.

Although the first gas well was completed in 1918, extensive development of the field did not take place until 1933. The drill-as-you-please method led to over-development of gas production due to defensive offset drilling. Along with this, several large pipeline-interests obtained gas acreage to supply their pipeline needs and took gas exclusively from wells they owned or controlled by purchase contracts.

This practice resulted in drainage from surrounding areas and rendered defensive offset drilling largely ineffective. These and other conditions in the field brought about almost continued litigation and turmoil. Several plants were erected to process gas for its gasoline content and vent the residue gas. This practice was contrary to the statute and the Railroad Commission ordered several such plants to cease venting residue gas.

A suit was brought in the Federal District Court attacking the validity of the statutes and sought to enjoin the Railroad Commission and the Attorney General from enforcing the provisions of the statutes.


OIL RECOVERY BY HIGH PRESSURE GAS INJECTION
INJECTION WELL
PRODUCING WELL
INJECTED GAS & HEAVY RESIDUAL CRUDE OIL
GAS ENRICHED BY EVAPORATION OF OIL
GAS BECOMING LIQUID BY CONTACT WITH & SOLUTION IN VIRGIN RESERVOIR OIL
VIRGIN RESERVOIR OIL

The court upheld the statutes and the authority of the Commission to stop the wasteful venting of gas. The Commission, however, continued to permit the venting of residue gas due to its inability to require gas purchasers to take ratably from all wells in the field.

This led to the passage in 1931 by the Texas Legislature of the Common Purchaser Act. This law required that pipeline companies taking gas in the state should be considered common purchasers and should take gas ratably under conditions which should be prescribed by the Railroad Commission. Thereafter, producers in the field without outlet and with the approval of the Commission made formal demand on the pipeline companies that they purchase gas as required by the Act and that they extend pipelines to serve areas owned by demanding producers.

In reply, Texoma Natural Gas Company, Cities Service Gas Company, North American Oil and Gas Company, and Panhandle Eastern Pipe Line Company brought suit in the Federal District Court in 1932 against the Railroad Commission, the Attorney General and the Governor alleging that they were not purchasers of gas and that to compel them to conform to the statutes and rules of the Commission would be to deprive them of their property without due process of law.

The facts showed that many producers in the area were without market outlet and that if the transmission companies continued to drill their own territory, eventually they would drain all gas from the non-outlet owners. An adjustment of correlative rights was needed.

The court held the common purchaser act and the rules thereunder, relative to natural gas, void and unenforceable as to the 4 plaintiffs and issued the injunction prayed by the transmission companies; no waste was involved.

The Commission then issued an order as a result of hearings directing: (1) all gas wells in a certain area be shut-in until such time as the owners had a market which would insure ratable production and outlet, and (2) that each well in the balance of the West Panhandle Field be limited to a flow of not more than 4% of its potential capacity. It exempted wells in the shut-in area which were furnishing gas for light or fuel to nearby towns.

Two of the gas transmission companies sought an injunction in the Federal Court against this order insisting that production could only be curtailed to prevent waste. The Commission contended that to protect correlative rights of owners of gas in the field, the Commission could prevent those with markets from taking until owners of non-outlet wells are provided with a market.

The court held that the statutes expressly withheld from the Commission the power to limit production except to prevent physical waste; that the Commission had no power to compel plaintiffs to purchase gas they did not need or require, though a statute purported to authorize it. Decree was for plaintiffs and an injunction issued.

While this case was under consideration in the Federal District Court, the Legislature passed an act which in part provided that the Commission should determine the reasonable market demand for gas from any common source of supply and if full production was in excess of reasonable market demand, they should allocate the allowable production among the producers on a reasonable basis.

Shortly after the passage of this act, the Commission issued an order declaring the market demand and setting allowables for all the wells on the basis of acreage and potential. Again the transmission companies took the

Commission to Court and again the Court ruled against the Commission, being of the opinion that the statute had no such effect nor could it be enforced in the absence of waste; that the Commission, in the absence of waste, was not authorized to intervene in the matter solely for the purpose of adjusting correlative rights. The Court also struck down the Commission's contention that the non-outlet well owners, to prevent drainage, might resort to a wasteful practice—the stripping of gas.

In the spring of 1935, the Texas Legislature passed a comprehensive conservation and gas proration statute that declared the policy of the state in the conservation of natural gas and the prevention of waste in its development and production and provided broadly for its administration by the Railroad Commission.

Thereafter, the Commission stopped the stripping of gas and the venting of the residue where less than one barrel of liquid was recovered per 100 Mcf of gas, this being the statutory definition of a gas well.

In the Augua Dulce Field, Clymore Production Company and Nueces Refining Company were producing 8 wells and venting the gas after running it through a separator. The wells produced approximately 65 barrels per day of water-white liquid from each well and the operators claimed this liquid was crude oil. The Commission claimed that it was merely drip gasoline or condensate and ordered the wells closed-in. The operators went to the Federal District Court seeking to restrain the enforcement of the order. The operators right to relief hinged on whether the wells were oil or gas wells. If oil wells, the operators could use gas as desired.

This time the Court ruled in favor of the Commission.

After passage of the new statutes by the 1935 Legislature, the Commission issued orders defining gas-oil ratios. These orders were upheld by the courts in an attack by Sunray Oil Corporation.

In December, 1935, the Commission again issued an order declaring the market demand and setting allowables for all wells in the Panhandle Field and the transmission companies again assailed the Commission in the Federal District Court. The issue of "correlative rights, absent waste" was framed and squarely presented to the court for decision. The court again rejected the Commission's contention that the Legislature had specifically given them power to adjust correlative rights to provide markets for well owners without them. The injunction was issued.

The case was appealed to the Supreme Court where it was affirmed. The Supreme Court did, however, recognize that the state may constitutionally prorate production in order to prevent undue drainage of gas from the reserves of well owners lacking pipeline connections. This was the first time the doctrine of correlative rights adjustment, absent waste was upheld as an inherent power embodied in the police power of the state.

The 1935 Act defined sweet gas and sour gas and restricted the uses to which each could be put. It prohibited, in particular, the use of sweet gas for the manufacture of carbon black. Since sweet gas was restricted, for all practical purposes, to light and fuel purposes, rapid and heavy migration of gas took place into the low pressure areas created by heavy withdrawals of sour gas for the manufacture of carbon black.

In 1937, the Legislature enacted a statute fixing the total daily volume of sour gas which could be withdrawn from any reservoir containing both sweet and sour gas at 750 MMcf and provided for proration by the Commission of withdrawals from such reservoir so as to prevent drainage of gas from one property to another.

A suit was filed in the Federal District Court in 1938 attacking the constitutionality of the statute and the validity of the orders promulgated thereunder. The three-judge court held the statute a reasonable exercise of police power to protect owners of wells, whose unrestricted right of capture the statute had lawfully invaded in order to protect the gas reserves from (1) dissipation in inferior uses, and (2) having their gas drained away by the disproportionate takings from the reservoir by other owners. Prayer for injunction was refused.

That was the last serious attack on a Commission proration order in the field. The sweet and sour areas of the field were combined in 1948 and have been prorated as a single field since that time.

Flaring of gas in Texas has now been reduced to approximately 6% of the total gas produced. Some flaring will always be with us due to the many small oil fields in remote locations where the utilization of gas would be uneconomic.

The Commission, however, is of the opinion that the 6% flare figure can be reduced further and is continuing its efforts towards reduction. In oil fields where gas is excessively vented, the oil allowables are reduced so that the gas produced is not in excess of facilities to handle gas.

A better wellhead price for natural gas would greatly aid in the reduction of gas flaring. It should be a free, fair and competitive price; not fixed by state or Federal law.

In a number of oil and gas fields, the operators and royalty owners have worked out their correlative rights themselves and agreed upon the operation of the field as a unit. Unit operation usually aids in waste prevention, but the formation of units has been delayed due to conflicting concepts of property rights.

Conclusion

The value of oil and gas conservation to the Nation and to the oil and gas industry cannot be overestimated. Oil and gas, both irreplaceable, are equally important in furnishing fuel for the ever-expanding demands of our peacetime economy and for the defense of our freedom here at home and abroad.

The Interstate Oil Compact Commission is an association of oil and gas producing states for conservation of oil and gas by prevention of waste. The strength of the Compact lies in enlightened public opinion; it has no coercive or compulsive powers.

The attitude of the industry toward conservation regulation has undergone a remarkable change. The roar of "deprivation of property" has dimmed to a faint murmer. The cries of "regimentation" are seldom heard.

In the not-too-distant future, oil and gas fields will be closed-in shortly after discovery until the limits of the field can be defined and processing equipment installed. Gas flaring will be reduced to a minimum. Only the wells necessary to produce the reservoir at its maximum efficient rate and to inject the required fluids will be drilled.

This chapter on Natural Gas Conservation was prepared by Lt. Gen. Ernest O. Thompson, chairman, Railroad Commission of Texas

Utility Gas Service in The South Surveyed by AGA

THE wealth of authoritative information about utility residential gas service in the 14 southern states, compiled from a survey by American Gas Association, highspots the non-uniform operating characteristics of the companies that provide the service.

Most spectacular, is the wide range of Btu values for the gas. There are 64 different Btu values distributed through the range from 500 Btu to 2585 Btu.

Specific gravities and pressures also differ considerably throughout the area.

The AGA report shows, as might be expected, that the gas companies in The South that are straight gas utilities heavily overshadow the companies that are combination gas-and-electric. However, the relationship is spotty, with relatively more combination companies in some states than in others.

Straight and combination companies

The 485 gas companies in the 14-state area are divided:

Straight gas companies	422
Combination gas-and-electric	63

Louisiana has 58 straight gas utilities and 12 combination companies; Texas has 90 straight companies and 8 combination. Then, dealing with a smaller total number of companies, South Carolina shows 8 straight gas utilities and 4 combination. In general, the proportions are more in the direction indicated by Florida, with 24 straight and 2 combinations; Virginia 16 straight and 2 combinations.

The type of gas service provided by the utilities in the SGA area seems to be influenced by the dual-consideration of proximity to gas supply and relative density of population centers.

Type of gas service

This is the distribution of the type of gas service for all those companies:

Natural gas	429
Liquefied petroleum gas	40
Manufactured gas	16

In Texas, 95 companies serve natural gas and 3 serve LP gas. In Georgia there are 2 LP companies, 2 manufactured and 18 natural. But, in Florida there are 7 LP companies, 11 manufactured and only 8 use natural. All 70 companies in Louisiana serve natural and in South Carolina there is a different proportion, 5 companies serving natural, 5 LP and 2 manufactured.

The Btu values

The range of Btu value, shown in an accompanying table, was most sharply illustrated in Virginia where one company delivers 525 Btu gas and one company delivers 2550 Btu gas. The largest number of Btu values in gas utility services was found in Texas where the range from 720 to 1500 was distributed among 21 different Btu-sendouts. The Btu values for the gas service from 24 companies were noted as not being available.

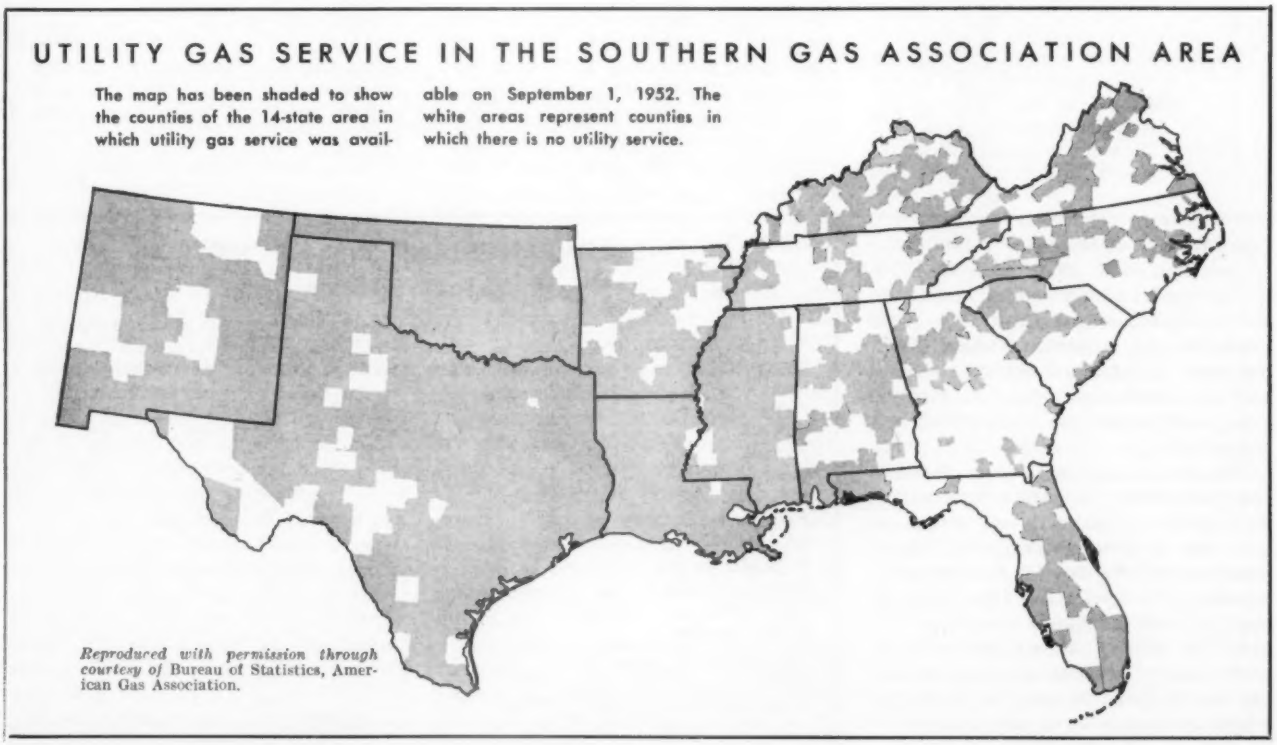
In Louisiana the 70 companies have Btu values ranging from 850 to 1150 but the relatively short range is broken up by 14 different values. In addition to the companies that reported their Btu values to AGA, there were 25 companies in Louisiana for which the values were not available.

The state having the shortest spread between high-low Btu value was Mississippi with values from 1000 to 1075 Btu distributed among 5 different values.

The AGA gas service survey showed, as indicated in the table, that the most popular Btu value, in terms of the number of companies that used it, is 1000 Btu gas. 31 Texas companies, 24 Louisiana companies and 33 Oklahoma companies use that value.

A national survey

"Survey of Residential Gas Service by Counties," the full title of the AGA survey, covers the entire country and was compiled and published by the associa-


UTILITY GAS SERVICE IN THE SOUTHERN GAS ASSOCIATION AREA
The map has been shaded to show the counties of the 14-state area in which utility gas service was available on September 1, 1952. The white areas represent counties in which there is no utility service.
Reproduced with permission through courtesy of Bureau of Statistics, American Gas Association.

BTU VALUES IN GAS UTILITY SERVICE

Southern Gas Association States

Compiled from AGA Data

Btu Values, Arranged from High-to-Low With Number of Companies Using Each

Btu	*Companies*	*Btu*	*Companies*	*Btu*	*Companies*	*Btu*	*Companies*
2585	1	1150	10	1020	7	850	3
2550	1	1130	7	1017	1	750	2
2520	1	1117	1	1015	2	740	1
2519	1	1100	27	1010	1	720	2
2500	2	1086	1	1000	157	709	1
2100	1	1080	25	990	3	640	2
1500	1	1075	5	985	1	620	2
1325	1	1070	1	980	6	610	1
1320	1	1066	1	975	1	600	1
1300	2	1060	6	970	5	550	5
1250	4	1050	52	965	2	540	3
1200	3	1044	1	950	2	535	1
1190	1	1040	11	940	1	530	4
1170	2	1035	2	920	1	525	6
1160	1	1030	13	900	2	510	1
1152	1	1027	2	864	2	500	2

Number of Companies Using Each Btu Value

Companies	*Btu*	*Companies*	*Btu*	*Companies*	*Btu*	*Companies*	*Btu*
157	1000	4	530	2	720	1	1086
52	1050	3	1200	2	640	1	1070
27	1100	3	990	2	620	1	1066
25	1080	3	850	2	500	1	1044
13	1030	3	540	1	2585	1	1017
11	1040	2	2500	1	2550	1	1010
10	1150	2	1300	1	2520	1	985
7	1130	2	1170	1	2519	1	975
7	1020	2	1035	1	2100	1	940
6	1060	2	1027	1	1500	1	920
6	980	2	1015	1	1325	1	740
6	525	2	965	1	1320	1	709
5	1075	2	950	1	1190	1	610
5	970	2	900	1	1160	1	600
5	550	2	864	1	1152	1	535
4	1250	2	750	1	1117	1	510

tion's Bureau of Statistics. It brings up-to-date a previous study made in 1950.

The report also provides data from the 1950 Housing Census, the latest available, and includes occupied dwelling units constructed during 1945-50 and the number of occupied dwelling units using utility gas for cooking and house heating.

The data in the book were obtained from gas utility companies representing 94% of the gas industry and to the extent that they were available, figures have been broken down to the individual counties of each state. The 286-page book includes individual state maps, divided by county, and indicated to show where natural gas, manufactured and LP gas are available in utility service, and which companies serve each county.

GAS COMPANIES AND TYPE OF SERVICE

In 14 Southern States

STATE	UTILITY COMPANIES		TYPE OF GAS SERVICE		
	Straight	*Combination*	*Natural*	*LP*	*Manufactured*
Alabama	38	5	39	4	—
Arkansas	9	1	10	—	—
Florida	24	2	8	7	11
Georgia	14	8	18	2	2
Kentucky	34	2	35	1	—
Louisiana	58	12	70	—	—
Mississippi	18	3	21	—	—
New Mexico	14	2	12	4	—
North Carolina	9	2	2	8	1
Oklahoma	71	7	78	—	—
South Carolina	8	4	5	5	2
Tennessee	19	5	22	2	—
Texas	90	8	95	3	—
Virginia	16	2	14	4	—

Manufacture of Gas Industry Equipment and Appliances A Growing Southern Activity

SGA Membership includes Many Companies Within and Outside The South

MANUFACTURE of equipment used by the gas industry, and of appliances for the utilization of gas, appropriately enough is a vital part of the industrial activity in the Southern Gas Association area. And, in addition to the SGA membership represented by manufacturers located in The South, the importance of the area is roundly recognized by prominent manufacturers, throughout the country, who also are SGA members.

The wide range of gas industry manufacturing in The South is indicated, to some extent, by a large pipe mill that produces well-casing and line pipe as large as 36″ in diameter, and a factory that produces gaskets and valve packings.

The high-production pipe mill in Houston that turns out well-casings and line pipe from 8¾″ to 36″ in diameter, also manufactures for gas industry and gas utilization purposes, LP storage tanks in capacities of from 250 to 3000 gallons. The same company, an SGA member, has large manufacturing facilities for heating equipment and water heaters in Illinois.

Located for central distribution throughout The South, the packing manufacturer maintains a factory in Birmingham and carries stocks in company warehouses at Houston, New Orleans and Tulsa for convenient servicing of gas industry needs in gasketing, packing and other sealing.

A southern company, in Dallas, manufactures its own design of gas regulator that has been applied widely in The South. This southern-owned company now maintains a sales organization in principal cities of the country.

As odorization of natural gas becomes an increasingly important gas industry factor throughout the country, the "warning agents for fuel gases" produced by a Houston company are in greater demand. This southern-producer of gas odorants, with national distribution, is said to be the only company engaged solely in this field and maintains a staff of trained and experienced representatives for consultation with gas companies on odorization problems.

A firm of engineers in Jackson are specialists in combustion and combustion equipment; and while acting principally as manufacturers representatives, maintain a staff that is qualified to handle the engineering of residential, commercial and industrial heating equipment.

From the most modest beginnings, an Owensboro, Kentucky, welding firm has advanced progressively together with the movements of the oil and gas industry; and in a matter of 21 years has passed well-beyond the million-dollar annual sales mark. While no major long distance pipelines are on their list, they have acquired the character of welding specialists for gas distributing utilities.

Appliance manufacturing, in a wide variety, is distributed throughout Southern Gas Association's area and includes water heaters, space heaters, ranges and complete heating systems.

The latest product of a Chattanooga manufacturer is a storage type water heater that recognizes the trend toward table-top appliances. The 30-gallon heater can be installed in a kitchen and its white jacket blends with other appliances.

From Nashville, another manufacturer is shipping a brand-new cabinet type space heater which is designed to operate with a cool cabinet while delivering heated room air.

Research and development are of top-importance in the operation of a large manufacturer of ranges in Cleveland, Tennessee. This 75-year old range company gets the benefit of the thinking and work of a full-time research director and a staff of technicians to advance its appliance lines. A modern plant equipped with precision high-speed equipment turns out the ranges.

Another modern plant in Fort Worth is a branch of a large mid-West manufacturing firm. This plant manufactures closet and attic type furnaces, all-year residential air conditioners, floor furnaces and furnace pipes and fittings. 350 people are employed in the 175,000 sq. ft. plant, and a $150,000 office building is under construction. This plant serves approximately 600 heating and air conditioning dealers in New Mexico, Oklahoma, Louisiana, Arkansas and Texas. A staff of sales engineers keeps in touch with gas utilities to familiarize them with the equipment and related merchandising and sales efforts.

Not to be outdone in appliance manufacturing, nearby Dallas has its own appliance manufacturing facilities in the form of a plant that manufactures room heaters. This company's products are distributed nationally; heaviest concentration of sales is in the SGA states. Here, too, new product research and development receives considerable attention. A new approach to merchandising gas room heaters was instituted by this company in 1952 and an enlarged program is in operation this year.

Members from many other states

The wide interest in SGA activities and the SGA-area is shown clearly by the extent to which manufacturer-members are located outside the 14-state area.

The geographical distribution of these members includes:

California: Belmont, Los Angeles, Richmond, Culver City, Monrovia, San Francisco, Pasadena, Glendale;
Connecticut: Bridgeport, Hartford;
Illinois: Chicago, Rockford, Franklin Park, Decatur, Belleville;
Indiana: Indianapolis, South Bend, Steubenville, Evansville, Connersville, Anderson, Shelbyville;
Iowa: Marshalltown;
Kansas: Wichita, Winfield;
Massachusetts: Foxboro, Wellesley;
Michigan: St. Joseph, Detroit, Jackson;
Minnesota: Minneapolis;
Missouri: St. Louis, Kansas City;
New Jersey: Trenton, Harrison;
New York: Brooklyn, Buffalo, New York;
Ohio: Niles, Mansfield, Toledo, Columbus, Cleveland;
Pennsylvania: Philadelphia, Conshohocken, Pittsburgh, Greenburg, Erie, Bradford;
Wisconsin: Milwaukee, Two Rivers.

These company members, from beyond the borders of the 14-state SGA area, represent a wide range of gas industry interests, including: heating equipment, instruments, controls, meters, construction, engineering and management services, engines, compressors, steel fabrication, pipe protection, leakage surveys, automotive equipment, gas processing equipment, diaphragms, insulation, piping, fittings and recorders.

In the field of gas appliances alone, the wide scope of the field is represented with domestic and commercial ranges; water heaters; space heaters; complete heating systems; laundry dryers; floor furnaces, refrigerators and air conditioners.

News of the Gas Industry

SOUTHERN NATURAL ADVANCING BIG EXPANSION PROGRAM

Southern Natural Gas Company has reported substantial gains leading toward the completion of its three-year $75 million construction program begun in 1952. Cost for the program in 1953 has been estimated at $70 million.

Construction is currently under way on new lines approved by Federal Power Commission to connect new gas reserves to the system. Last December, delivery capacity was increased from 627 to 710 MMcf per day, while a start is planned for 1953 in increasing pipeline capacity to more than one billion cf daily to serve an additional population of more than 735,000 people in and around Augusta and Savannah, Ga., Aiken, S. C. and other southeastern communities. This expansion is awaiting FPC approval.

According to an independent estimate, natural gas reserves available to the company at January 1, 1953, were about 5 trillion cf. These reserves are sufficient for more than 17 years, based on the company's estimated annual requirements after completion of all facilities contemplated in the current construction program.

El Paso Installing 28 Gas Turbines

El Paso Natural Gas Co., as part of its current construction program, is making large-scale use of gas turbines for the transmission of natural gas. The company is installing 28 gas turbines aggregating 140,000 hp in 10 separate stations along its main lines from the Permian Basin and at intervals of about 35 miles from existing reciprocating engine compressor stations.

Paul Kayser, president, said that after a careful study of other gas-turbine installations his company selected the new power as more economical, with lower capital cost per hp and lower cost of operation.

The company's total expansion program, still awaiting approval by Federal Power Commission, would lift El Paso's delivery capacity by 400 MMcf a day. With this project completed, at an estimated cost of $175,250,000, the company will be delivering 1,405 MMcf a day to California and 600 MMcf to customers in West Texas, New Mexico, Arizona and Nevada.

Four States Joining Compact

The legislatures of Wyoming and North Dakota have passed legislation authorizing membership of those states in the Interstate Oil Compact Commission, and Compact agreements are expected to be signed by their governors in the near future.

At the same time it was reported that bills have been introduced in Nebraska and Utah State legislatures to affiliate with the Compact Commission as member states.

Authorization for Alaska to join in the Compact as an associate member has received approval of the Alaska Legislature, and the Governor of the Territory has signed application for such membership.

Tetco-Wilcox Trend Let Contracts

Texas Eastern Transmission Corp. has let three pipeline construction jobs and four river crossings.

Associated Pipe Line Contractors, Inc., Houston, will construct 75 miles of 24-inch pipeline from Lavaca County to Waller County, Texas. Williams Brothers, Tulsa, was awarded construction of 71.4 miles of 24-inch pipeline from Polk County to Shelby County, Texas; construction of the Neches and Angelina River crossings; and construction of the Attoyac Bayou crossing. Anderson Brothers Co., Houston, will construct 82 miles of 24-inch pipeline from Waller County to Polk County, Texas. Pentzien Inc., Omaha, was awarded river crossings for the Trinity, Brazos, Colorado, and Sabine rivers.

At the same time, it was announced that Wilcox Trend Gathering System, Inc., has awarded three contracts for construction. H. B. Zachry Co., San Antonio, has a contract that includes construction of 116.8 miles of 14 and 16-inch pipeline from Duval County to DeWitt County, Texas, and the crossing of the Guadalupe River. Altgelt Construction Co., Inc., Corpus Christi, has been awarded construction of approximately 85 miles of laterals and gathering lines. Brown & Root, Inc., Houston, was awarded construction of a 2,200 horsepower compressor station to be built near Thomaston, Texas.

Tetco Opens New Office Building

The recently opened Texas Eastern building, Shreveport, Louisiana, new 14-story office of Texas Eastern Transmission Corporation, is one of the largest office structures in the Southwest. It is 245 feet high, contains 200,000 square feet of floor space and, in addition to office area, houses a modern cafeteria, several stores and shops.

On the roof of the building is a three-story structure that has elevator equipment and a 750-ton air conditioning system. The

air conditioning is push-button controlled from the basement. From the ninth through the fourteenth floor are the offices of Texas Eastern, with executive, board of director and conference rooms on the 14th floor. The mail room handles an average of more than 3,000 outgoing pieces a day, while telephone operators process more than 2,000 calls daily.

Keeping the building in shipshape condition is a big job and calls for the services of 75 maids and porters.

Two Join Southern Heater Co.

William P. McIntosh and John A. Hancock have joined the sales staff in the Memphis branch office of Southern Heater Company, Inc., New Orleans.

Mr. McIntosh, formerly with Memphis Hotel and Restaurant Supply Co., will cover northern Mississippi and portions of western Tennessee.

Mr. Hancock will work in Memphis and a section of eastern Arkansas.

MUELLER'S TRAVELING EXHIBIT VISITS ATLANTA

Officials, servicemen, engineers, superintendents and other personnel of Atlanta Gas Light Company, recently attended the conference-demonstration of gas service equipment and safety methods created by Mueller Co., in the traveling No-Blo exhibit. The exhibit, held at Atlanta Gas Light Company's employee schoolroom in the operating building, is currently touring the country. Designed to acquaint men in gas utility and pipeline companies with the latest and safest methods of working on gas lines under high pressures, audience participation is encouraged at the conferences in order to bring about discussions on technical data and on problems encountered in the field.

Frank Miller, gas field engineer, and Francis X. Uhl, give demonstrations of methods used in handling gas through actual applications of the equipment. When possible, demonstrations are made under pressure to more-nearly duplicate true job conditions.

To date, Mr. Miller and Mr. Uhl have traveled 25,000 miles, presented the exhibit to more than 300 companies, and have talked to more than 8,000 gas industry personnel.

Raymond Beeny

Raymond Beeny, secretary-treasurer of the Alabama Gas Corporation, died suddenly April 10, at the age of 55, while visiting at the home of C. P. Rather, president of Southern Natural Gas Corporation.

A native of New York, Mr. Beeny became secretary-treasurer of Alabama Gas Corporation, Birmingham, Alabama, in 1940. Prior to that time he was associated with Southern Natural Gas Corporation.

Mr. Beeny also was a director of Alabama Gas Corporation.

Adair is Empire Stove Branch Mgr.

L. A. Brand, vice president, Empire Stove Co., Belleville, Ill., has announced the promotion of William G. Adair, to branch manager of the Oklahoma and southern Kansas territory, with headquarters in Oklahoma City.

Mr. Adair has been advertising manager for the company since 1951.

Roberts-Gordon Corp Names Rep.

Dean Wagoner, Jr., has been appointed sales representative for Roberts-Gordon Appliance Corp., Buffalo, and will cover the states of North and South Carolina. Mr. Wagoner has been working in this area for the past four years.

Promote Two at Roots-Connersville

The promotions of E. P. Roudebush to vice president and works manager, and D. A. Johann to vice president in charge of sales, were announced recently by R. H. Owens, president of the Roots-Connersville Blower division of Dresser Industries, Inc.

Mr. Roudebush, who joined the parent company in 1944 as director of industrial engineering, will be in charge of all manufacturing activities at the Connersville, Indiana and Delaware, Ohio plants.

Mr. Johann has been general sales manager since January, 1951, and will now be in charge of all sales and advertising activities of the company.

Barber-Colman Opens New Office

The Barber-Colman Company, Rockford, Ill., has opened a new factory branch office in Columbia, South Carolina.

The new office, located at 537 Harden Street, will handle the sale of automatic control and air distribution products. Robert Lindsay is the branch manager.

Algonquin Removal Order Reversed

A court order directing Algonquin Gas Transmission Co. to remove 2½ miles of pipeline in northern Westchester county, N. Y., was reversed recently by the Appellate Division.

The appeals court, in a unanimous decision, held that legal action granting "damages or other relief" should be held in abeyance pending the outcome before Federal Power Commission of the company's application for a certificate of convenience and necessity. Supreme Court Justice Elbert T. Gallagher had issued the order Jan. 8 in a suit brought by 11 property owners because the company's right to eminent domain had been vacated by a Federal court.

Algonquin's certificate of convenience and necessity from the FPC was canceled last year. Hearings are now being held to determine whether Algonquin should be allowed to continue with its line from Lambertville, N. J., to Boston.

ROCKWELL OPENS NEW OFFICE-WAREHOUSE IN ATLANTA

Pictured here is the new office, warehouse and service building recently opened by Rockwell Manufacturing Company at 1495 Northside Drive, N.W., Atlanta.

Complete stocks of the company's standard gas, water and oil meters, gas regulators, Nordstrom valves and repair parts will be carried in the warehouse section of the structure.

J. W. Northcutt, shown at the right, Southern regional sales manager, and R. A. Johnson, newly appointed district sales manager, will make their headquarters at this new location. Mr. Northcutt and Mr. Johnson will direct the sales activities for the entire southeastern district.

Faster and more convenient service is planned by the company, for users of Rockwell products in The South, through use of the new facilities. A maintenance department already has been established in the building to provide immediate repair work on all equipment manufactured by the company, for customers in the area.

New Hammel-Dahl Representatives

Hammel-Dahl Company has announced the appointment of Control Equipment Company, Atlanta, as sales and service representatives in Georgia, Alabama and Florida.

The company also announces the opening of two California Offices for sales and service of Hammel-Dahl products, under the supervision of Thomas H. Ponton.

A graduate of the University of Rhode Island, Mr. Ponton has had previous experience in the West Coast area while associated with E. I. duPont Co.

N. D. Sellman is Southern Servel Mgr.

Nils D. Sellman, air conditioning sales representative in New England for five years, has succeeded H. Richard Nielsen as Southern regional sales manager, Servel, Inc.

Mr. Sellman will supervise air conditioning sales and service in the southern district, including the states: North Carolina, South Carolina, Georgia, Florida, Tennessee, Alabama, Mississippi, Louisiana and Arkansas. He will make his headquarters in Atlanta.

Southern Heater Co Opens New Bldg

Completion of the new Southern Heater Company, Inc., office and warehouse building, at 470 North Decatur St., Memphis, Tenn., has been announced by Emmett A. Smith, president.

Eggelhof Expands Sales Force

The appointment of Harper M. Young, Jr., as sales engineer in charge of Eggelhof Engineers sales office in Little Rock, Ark., has been announced by Bob Molnari, vice president, Houston office.

Prior to joining the company, Mr. Young was sales engineer for Armco Drainage & Metal Products, Inc., in Houston, and was with Delta Shipbuilding Co. in New Orleans.

Servel Appoints Utility Manager

The appointment of C. A. Stockhoff as southwestern public utility manager, Servel, Inc., has been announced by A. E. Lee, manager, public utility division.

Mr. Stockhoff, with headquarters in the company's southwestern regional office, Dallas, will cover the territory in Wyoming, Colorado, Kansas, New Mexico, Oklahoma and Texas. He joined Servel in 1936 as a sales engineer.

John A. Hiller is VP of Portland Co

John A. Hiller, past president of the New England Gas Association, was elected vice president of Portland (Maine) Gas Light Co. at the company's annual meeting.

Mr. Hiller first became associated with the gas industry in 1930 as a member of the sales department of Boston Consolidated Gas Co., and in 1932 was made a district manager.

In 1940, he left the Boston company to become sales manager of Portland Gas Light Company and in 1951 was made assistant vice president in charge of sales and service.

Mr. Hiller is a member of the board of directors of NEGA and of the Guild of Gas Managers.

NEW EQUIPMENT
BY SGA MEMBER-COMPANIES

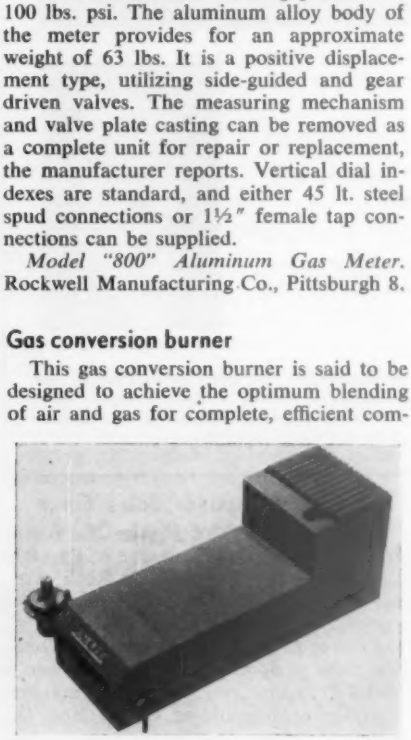
Aluminum gas meter

Designed for use on small shops, apartment houses and commercial establishments, this aluminum gas meter operates at capacities of 800 cubic feet at ½" differential and 1,600 cubic feet at 2" differential with a maximum working pressure of 100 lbs. psi. The aluminum alloy body of the meter provides for an approximate weight of 63 lbs. It is a positive displacement type, utilizing side-guided and gear driven valves. The measuring mechanism and valve plate casting can be removed as a complete unit for repair or replacement, the manufacturer reports. Vertical dial indexes are standard, and either 45 lt. steel spud connections or 1½" female tap connections can be supplied.

Model "800" Aluminum Gas Meter. Rockwell Manufacturing Co., Pittsburgh 8.

Gas conversion burner

This gas conversion burner is said to be designed to achieve the optimum blending of air and gas for complete, efficient com-

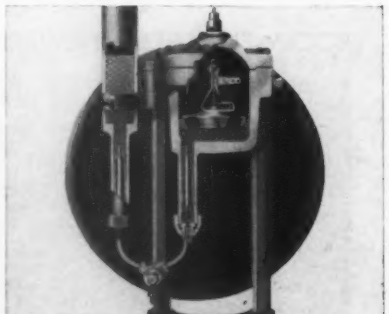


bustion, and is available in two sizes. Installation can usually be completed in a few hours the manufacturer reports. All working parts are accessible from the front for adjustment or servicing. With input ratings from 75,000 to 300,000 Btu/hr, the burner is completely factory assembled, with thermostat and transformer, and sufficient tubing for venting regulator and connecting to the pilot cock five feet above floor included. Pilot burner is assembled on rigid supply piping with regulator vent tubing assembled in place. If specified, the units may be assembled with: electric pilot ignition, pilot filter, pilot gas pressure regulator and chronotherm.

Sonner Blue Ribbon Flame Gas Conversion Burner L-52 Series. Sonner Burner Co., Winfield, Kans.

Flow meters

Many new design features have been added to the companies line of flow meters, including: pressure-seal bearing; interchangeable submerged-in-mercury check floats; U-bend with metal-to-metal compression seals; calibrated damping plug; and a new type of stainless steel ball-chain which is said to eliminate errors of anularity. The pressure-seal bearing reportedly eliminates periodic lubrication. Leak-proof



at working pressures, uses no springs and needs no mechanical adjustments. The U-bend seals, tested at 10,000 psi, offer protection against mercury loss. The illustration shows type 27, mercury manometer, cut-away view.

Flow meters. The Foxboro Co., Foxboro, Mass.

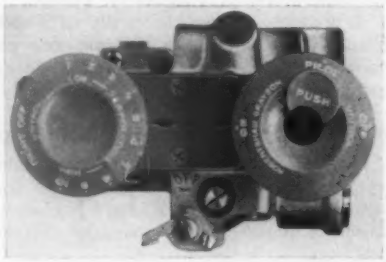
Gas jet compressors

These gas jet compressors are said to be the same as steam jet ejectors in principle, the application being different. The motivating force is natural gas, brought into the distribution point. The natural gas is mixed with manufactured gas and sent out under pressure. Some steam is needed to heat the nozzles because of the refrigrating effect from the expansion of the natural gas. The manufacturer reports that each gas jet compressor unit has to be engineered and made to fit the conditions of incoming gas pressure, pressure of manufactured gas and the desired pressure of gas in the line.

Gas Jet Compressors. Ejector div., Worthington Corp., Harrison, N. J.

Unitrol space heater thermostat

This unit is a completely automatic snap-action control for temperature and pilot on space heater thermostat. Normally, the up-



per dial is used only when lighting the heater, the lower dial being set to obtain desired temperature. In the event of pilot failure, the unit automatically shuts off all gas. The unitrol is designed for use with gas fired floor furnaces, single and double wall heaters, console heaters and combination ranges. It provides automatic control of room temperature without outside electrical connections.

Robertshaw-Grayson Unitrol Model A-17. Robertshaw-Fulton Controls Co., Thermostat div., Youngwood, Pa.

Heating and air conditioning equipment

Among the units recently introduced by this manufacturer are: forced air furnace, counter-flo forced air furnace, square gravity furnace, air conditioner, and compact duct heater.

For use as closet or basement type, the Hi-Lo boy forced air furnace offers heavy gauge welded combustion chamber and radiator, built-in draft diverter and filter racks. For use with all gases, it has AGA ratings from 50,000 to 128,000 Btu/hr output.

The Inn-A-Wall and Counter-Flo forced air furnaces discharge warm air from the bottom and are designed for installation in closet, alcove or utility room. AGA ratings for wall models range from 48,000 to 60,000 Btu/hr output, and Counter-Flo models from 80,000 to 100,000 Btu/hr output.

With raised port burners—removable for cleaning—radiation shield and a large capacity radiator made of rust resisting quality steel, the square gravity gas furnace is designed for installation in the basement. Output ratings for the models range from 45,000 to 93,750 Btu/hr.

For installation in basement or game room, the winter air conditioner is said to

provide warmth in winter and circulate cool breezes on summer days.

The compact duct heater, for commercial, industrial and residential heating, reportedly is designed to permit installation at vital points in ducts of warm air and air conditioning systems for concealed installation. With slotted port immersion type cast-iron burner, it is said to be adaptable as either a left hand or right hand unit.

Norman Hi-Lo Boy, Counter-Flo, Inn-A-Wall, Winter Air Conditioner, Duct Heater, Square Gravity Models. Norman Products Co., 1150 Chesapeake Ave., Columbus 12.

Control system

This new all-gas control system has been introduced as a highlight in the manufacturer's 1953 gas control line, and is available with pilot generating 700 millivolts plus. The system is reportedly an advancement over the manufacturer's earlier developed control system and, because of the increase in operating voltage, is said to insure dependable operation when limit controls or time switches are inserted in the wiring circuit. It is stated that the increased generating power of the all-gas system will enable it to meet all installation requirements.

BX69 All-Gas Control System. General Controls Co., Glendale, Calif.

Vigilance is Watchword as Interest Continues Climb

(Continued from page 44)

the stock market. This decline increased the composite utility stock yield in three weeks to 5.19 per cent from the previous 5.01 per cent.

That an early about-face in the utility stock price trend is not envisioned, at least in all investment quarters, is shown in the opinion recently expressed by one of the larger New York investment firms which deals heavily in utility shares. "While it might well be expected that this sizable correction, which wiped out all of the gains since last November, would re-establish a firm base from which a recovery could start, we believe that the reaction merely eliminated some of the previous excesses which were largely artificial and unwarranted (namely the decline in share yields while interest rates were firming and prices of Government and corporate bonds were declining). While there may be some temporary recovery, we would prefer to take a longer term perspective, which, in retrospect, may show that the tighter money conditions have finally been reflected in the market for utility common stocks and that the long term cyclical upturn which started in 1948 has come to an end. We, therefore, feel that individuals should be highly selective in their holdings of public utility common stocks and should give consideration to switching into municipal and other tax-exempt bonds which have declined to a level where they afford favorable comparative net yields."

This constitutes a drastic appraisal of the outlook for utility equities, and fortunately is one of the most extreme which has been expressed of late. It reflects thinking, however, which utility management must keep in mind as it contemplates the amount which it still must raise through new common stock offerings. The thinking is predicated on the assumption that a sizable part of utility share purchases to date has come from institutional type investors who have been unwilling to assume the risks of industrial stocks. Since many of these purchasers are corporations which have to pay full income taxes on interest income but obtain an 85 per cent exemption on dividend income, they have had practically no choice but to turn to utility common stocks even at recently prevailing high prices with the hope that in time they would become fully supported by earnings and dividends.

Tippy is Director of Miami Co

William B. Tippy, vice president, Commonwealth Services Inc., was elected a member of the board of directors of Peoples Water and Gas Co.

William B. Tippy

Peoples Water and Gas Co. supplies gas service to southeastern Florida within Dade and Broward counties, including the greater Miami area and northward.

Mr. Tippy has been associated in public utility operations for more than twenty years, including electric and gas operations of Consumers Power Co., Michigan. In 1945, he joined The Commonwealth & Southern Corp., and on his election as vice president, he acted as sponsor for the combination operating subsidiaries and general consultant to the Commonwealth system companies on gas matters.

In 1949 he became vice president of the successor service company, Commonwealth Services Inc., in executive charge of gas consulting operations, including activities of the company's Washington office, and has served as consultant to many gas utilities throughout the United States. Mr. Tippy also is president of Commonwealth Gas Conversions, Inc., a subsidiary.

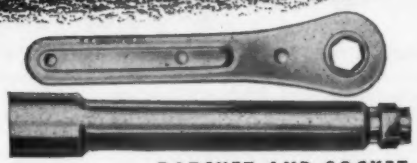
GRIFFITHS

Serving the gas industries for more than 30 years

CONVERSION PARTS AND SPECIAL TOOLS FOR THE GAS INDUSTRY

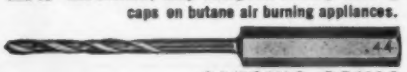
DIXON FIVE CORNERED REAMERS

For reaming and cleaning orifice openings. The following sizes in stock: 40, 45, 50, 52, 54, 55, 56, 58, 60, 62, 64, 65, 66, 68, 70, 72, 74, 75, 76, 78, 80. Numbers denote twist drill size at larger end of reamer.



RATCHET AND SOCKET

Speed up changing orifices. Socket handles 5/16" and 1/2" hex orifices; deep enough for velocity reducing caps on butane air burning appliances.



GAUGING DRILLS

Fine quality, high carbon steel, with brass hex handles. Set of 40, ranging from 41 to 80, inclusive, with number stamped on handle.

The Griffiths Engineering Department has kept pace with the increasing tempo of conversion programs to accommodate new gases and blends. All needed conversion parts and special tools are immediately available to you. WRITE FOR COMPLETE CATALOG

G-3800 GRIFTITE MULTI-PURPOSE CAP ORIFICE

3/8" x 27 thread 13/16" O.A.L. 1/2" Hex. Special thread adapts itself to variations in valve diameters and maintains tight, leak-free joint. Fits varying lengths of Venturi tubes. Can be used on white metal. Furnished with counterbore if desired.

CONVERSION RINGS FOR "MAGIC CHEF" RANGES

Most satisfactory method for moving flame closer to cooking vessel on cone type low burner. Raises burner 1/2 inch.

G-4014 DIE HOLDER

For easier, faster, more accurate rethreading and cutting new threads. Especially useful for pilot tubes, top burner valves and the difficult-to-get-to oven burners. For all 13/16" O.D. dies.

E. F. GRIFFITHS CO.

445 EAST HIGH ST., PHILADELPHIA 44, PA.

SPECIAL PARTS MADE TO YOUR SPECIFICATIONS

Construction Throughout the South Includes Gas Sales Potentials

(Continued from page 39)

struction volume, with materials more plentiful and competition keener.

ARKANSAS—by J. J. Orsini, Little Rock—*Map Area H*

The most noticeable trend around here is toward houses with greater square-footage; also toward better construction and better materials.

Speculative building has decreased in the past few months. There is emphasis on homes built for owner-occupancy. There has been more demand recently for lots and acreage in suburban areas and newly developed sub-divisions.

Architecturally, the trend is toward so-called contemporary, with lower roof levels and concrete slab floors. The rule is three bedrooms and 1½ baths.

There is a move toward year-round air conditioning but it is chiefly for houses costing more than $20,000.

Basements and partial basements are not in demand. Utility rooms at ground level are considered not only more economical but more convenient.

LOUISIANA—by S. J. Kupecky, New Orleans—*Map Area I*

High volume continues in the residential classification and in public works and utilities.

But Douglas Freret, New Orleans architect who heads the New Orleans chapter of American Institute of Architects, expresses the opinion that "the construction trends are toward more commercial and industrial work in the New Orleans area. School work has been a large part of the program in the past few years and will continue because of the great needs."

Another New Orleans architect, William E. Bergman, said that among the trends he sees are those toward more glass, more open area, and more freedom from restriction by customs and traditions. Also, more use of prefabricated building materials.

Basements are not built in this area except for large commercial or institutional buildings. In residential construction the usual thing is the utility room combined with carports and garages.

New Orleans homes costing $12,000 to $15,000 exclusive of land now feature winter-and-summer units for air conditioning.

TENNESSEE—by Dixon T. Gains Jr., Memphis—*Map Area F*

The residential trend seems to be definitely toward low-cost projects.

One of the striking features about construction prospects in this area is the critical need for schools. And there is a demand for larger institutional buildings.

Year-round air conditioning is now getting into the medium-price house as well as the better ones. The industry feels that all new homes will have built-in air conditioning within six or seven years.

There is a trend toward the ranch type of house even in the lower brackets.

The boom is with us and it is felt that the 1953 total will be ahead of last year.

TEXAS—by O. O. Paulsell, Dallas—*Map Area K*

Last year's prolonged heat wave in Texas has stimulated air conditioning. Year-round air conditioning is going strong indeed in houses costing above $25,000 and is working its way into lower-price houses.

There is an increase in the inclusion of utility rooms at first-floor level for appliances.

Construction volume continues strong in both residential and non-residential classifications, with general expectation that it will continue. I agree, but with the qualification that if substantial cut-backs come in military construction, the non-residential figures may decline from 1952.

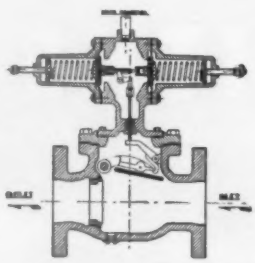
Architecturally, the trend is toward modern, or contemporary design in residences.

If I were to point out the most spectacular recent construction I would choose the new shopping centers all over Texas, and the skyscrapers of Dallas and Houston.

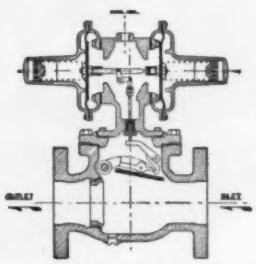
[EDITOR'S NOTE: While the Dodge construction news service does not cover New Mexico, it may be safely assumed that Mr. Paulsell's report on Texas will apply in reasonable measure to New Mexico.]

THERE IS A *Security* AUTOMATIC SHUT-OFF VALVE FOR EVERY REQUIREMENT

Security Automatic Shut-Off Valves will provide automatic shut-off in the event of either increase or decrease in pressure. Installation may be upstream or downstream (in relation to the regulator), with or without static line control, for either high or low pressure application.



MODEL "IDPS-H" (closes on Increase *or* Decrease in Pressure; Static line control. High pressure application).



MODEL "IDPS-L" (closes on Increase *or* Decrease in Pressure; Static line control. Low pressure application).

Write for New Comprehensive Bulletin

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Gourmets Approve Commercial Cooking in New Orleans . . . All Cook with Gas

(Continued from page 35)

steam tables. Mr. Moran says, "In our business, we need a fuel that is clean, quick and easily controlled. Naturally we use gas."

GALATOIRE'S—209 Bourbon St. Founded in 1905, the present owners are Leon and Justin Galatoire. Specialty dishes are: *Shrimp Remoulade* and *Trout Maguery*.

Gas has been used since 1919 and is used for the ranges, cooking and baking ovens, broilers, coffee urns, water heaters and steam tables. Mr. Galatoire says, "The main reason for using a range is to produce heat for cooking. Gas is the fuel that supplies cleaner, quicker and cheaper heat."

JOSEF'S—327 Bourbon St. Started in 1951 by Josef Barras, after long experience in one of the other famous restaurants, the restaurant is in a 130-year-old building which still features gas chandeliers. The French cuisine features: *Stuffed Chicken Perigourdine for Two* and *Supreme of Pompano Glace Grand Duc*.

Gas is used for the ranges, cooking and baking ovens, broilers, deep fat fryers, coffee urns and water heaters. In the words of Josef, "Gas cooking is quick cooking and economical."

JUNG HOTEL—1500 Canal St. Built in 1925. Ray Cantrell is General Manager. This is the home of the Cotillion Room.

Gas is used for the ranges, cooking and baking ovens, broilers, deep fat fryers, coffee urns, toasters, water heaters, bain marie and steam tables.

Mr. Cantrell has this to say, "We use natural gas for our volume cooking because we always find it clean, fast, economical and easy to control. Gas is the natural fuel for our type of operation."

LA LOUISIANE—725 Iberville St. Founded in 1835 under the name of Bezaudon's, the name was changed to La Louisiane in 1881. The proprietor is Edward H. Seiler. Located within the restaurant are the famous Zacharie Room, 1880 Room and the Crystal Dining Room. Specialties are *Oysters Diverses* and *Filet de Red Fish Pontchartrain a'Mandine*.

Fuels in use through the years were wood, coke, crude oil, manufactured gas and now natural gas. Gas is used exclusively for the ranges, cooking and baking ovens, broilers and deep fat fryers, coffee urns, griddles, toasters, and water heaters.

Mr. Seiler states, "Gas is the finest fuel for preparing Creole-French cuisine to uniform perfection. It is a clean economical fuel worthy of the place it holds as the finest fuel in an economical age."

MAYLIE'S—1001 Poydras St. Started in 1876, the owner and manager is William Maylie.

Mr. Maylie uses gas for the ranges and cooking ovens, broilers, and water heaters, and says, "Gas as a cooking fuel is not only economical but also labor-saving. It is easy to handle and provides easy temperature control with no muss or fuss. We have never found a better fuel."

PONTCHARTRAIN HOTEL—2031 St. Charles Ave. Built in 1927, E. Lysle Aschaffenburg is president. Home of the Carribean Room and The Coffee Shop. Feature dishes are *Oysters Bienville* and *Trout Veronique*.

Gas is used for the ranges, cooking and baking ovens, broilers, deep fat fryers, coffee urns, toasters and water heaters. Mr. Aschaffenburg says, "We are convinced that natural gas is the best fuel for cooking. It is flexible, easily controlled and economical."

ROOSEVELT HOTEL—123 Baronne St. Founded in 1907, as Grunewald Hotel, Seymour Weiss is the managing director. This is the home of the Blue Room and Fountain Lounge. It also is the owner and dispenser of the famous *Ramos Gin Fizz* and *Sazerac Cocktail*.

Gas has been used from the opening and now supplies the fuel for the ranges, cooking and baking ovens, broilers, deep fat fryers, coffee urns, toasters, and water heaters.

Eugene Wiolat, chef, states "Natural gas is ideal for cooking. It is fast, clean and economical. It enables us to accurately control our cooking temperatures, which is so necessary in serving a consistently excellent cuisine. We certainly would not use any other fuel."

TURCI'S ITALIAN RESTAURANT—914 Poydras St. Started in 1917, and is owned by Mr. and Mrs. Ettore Turci. Authentic Italian dishes are personally prepared by Signora Turci. Specialties are: *Homemade Ravioli* and *Cutlet Parmigiana*.

Gas is used for the ranges, cooking ovens and broilers, coffee urns and water heaters. Signora Turci states, "We use gas because of its efficiency and extreme cleanliness."

More . . . much more

This is not intended to indicate the full extent of the application of gas to good cooking in New Orleans, by any means.

Throughout the city, on St. Charles Avenue, Bourbon Street, Eiberville Street, St. Louis Street, Royal Street, North Broad Street, in fact wherever you might turn in New Orleans, gas is used in restaurants for the ranges, cooking and baking ovens, broilers, deep fat fryers, coffee urns, water heaters, roll warmers, bain maries and steam tables.

No visit to New Orleans is complete without partaking of coffee and doughnuts at either the MORNING CALL COFFEE STAND or CAFE DU MONDE, both of which are located within the historic French Market in *Vieux Carre*, the old French quarter.

The doughnuts are unique and prepared from special recipes passed down from generation-to-generation. It is a New Orleans custom to visit these two places after the theatre. However the refreshment is excellent at any time of the day or night. Both places use natural gas for their cooking requirements.

For the Gourmet . . . from Louisiana
Antoine's, New Orleans: French Pancakes a a Gelee

½ cup sifted all-purpose flour
1 egg
1 egg yolk
⅛ teaspoon salt
5 tablespoons milk (approximately)
3 tablespoons currant or red raspberry jelly
Powdered sugar

Combine flour, egg, egg yolk, salt, and milk. Beat with rotary beater until smooth. If necessary, add more milk to make batter the consistency of light cream. Cover; chill for ½ hour in refrigerator. Heat heavy iron skillet; wipe out with waxed paper which has been dipped in butter. Pour in enough batter to barely cover bottom of skillet, tipping while adding batter. Brown pancakes on both sides. Remove from skillet; spread with jelly; roll up jelly-roll fashion. Sprinkle with a little powdered sugar. Place under broiler to glaze. Serve immediately. 12-to-15 5-inch pancakes.

Reprinted, with permission, from *The Ford Treasury of Favorite Recipes*. Simon and Schuster.

NEW BULLETINS
BY SGA MEMBER-COMPANIES

ECLIPSE PRESSED STEEL POTS. Seamless formed containers of uniform quality and said to offer high strength at elevated temperatures are described in this bulletin. For lead, salt, cyanide, oil tempering and metal melting, and for all heat treating operations up to 1750°F, standard sizes and dimensions included. Also, information is included on metalized pots, with coatings for various temperatures from 1500°F to 1700°F and higher.

Bulletin No. N-1. Pp. 4. Eclipse Fuel Engineering Co., Rockford, Ill.

DISSOCIATOR EQUIPMENT. This illustrated bulletin describes an ammonia dissociator unit with integral controller which automatically produces controlled atmosphere for heat treating and other applications where an insert atmosphere is required. Operation of the unit is from liquid bottled ammonia. The bulletin describes the unit and economics of the dissociator operation, its operating principles and other pertinent factors concerning the applications of the unit.

Bulletin No. 4.4-5. Pp. 4. Minneapolis-Honeywell Regulator Co., Philadelphia 44.

TYPE LS GAS, DIESEL AND GAS, DIESEL ENGINES. This varicolored bulletin provides complete data and specifications of the company's 4-cycle type LS engines of 15½" bore and 22" stroke. Engines are operated by gas, gas-diesel, and diesel, atmospheric or supercharged, and are rated from 690 to 2500 hp. The 6, 7 and 8 cylinder engines offer as standard equipment: built-in gear type lubricating oil pump, oil cooled pistons, water-cooled exhaust manifold, individual cylinder head covers, hydraulic speed control governor, extension shaft and outboard bearing, lubricating oil filter and strainer, lubricating oil pump tank and engine-mounted gauge board.

Bulletin L-71. Pp. 12. Cooper-Bessemer Corp., Mount Vernon, Ohio.

MODEL 40 CONTROLLER. This attractive, colorful bulletin describes in detail the construction, operation and design of the various controllers in the M/40 series. Featuring pen arm movement and freedom from binding or backlash through the use of self-aligning link, diagrams and illustrations are presented of the control unit, reset resistance and control relay. The bulletin offers information on single action, dual action, duplex, auto-selector, ratio, relation, pneumatic set and time-schedule M/40 controllers.

Bulletin 461-1. Pp. 32. The Foxboro Co., Foxboro, Mass.

ENGINEERING, SUPERVISION, CONSTRUCTION AND OPERATION SERVICES. Here are three color bulletins that deal with the design, construction and operation of gas plants, stations, mains and pipelines. The company provides complete and flexible engineering, construction managing and inspecting services. Any portion or all of the services may be used in conjunction with the engineering and construction department of companies desiring such services. The bulletins present information briefly outlining past experiences.

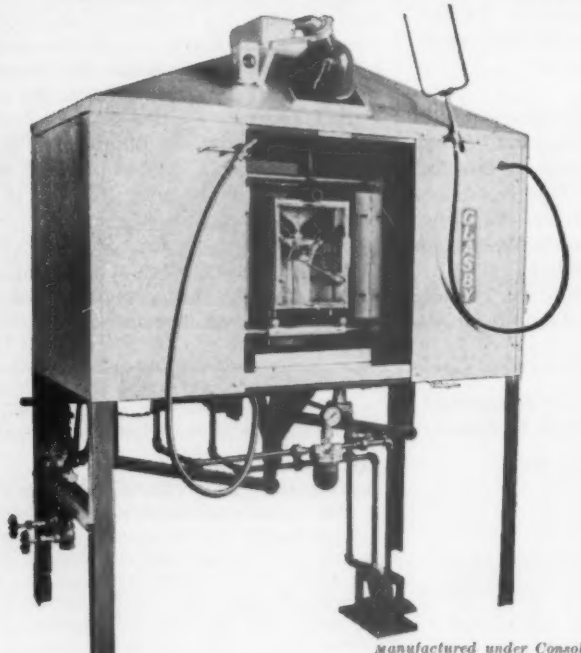
United Engineers & Constructors, Inc., 1401 Arch St., Philadelphia 5.

JANITROL AUTOMATIC HEATING EQUIPMENT. Amply illustrated, this two-color bulletin presents information on performance, features and dimensions of the company's line of heating equipment. Data is offered on: gas fired winter air conditioners (vertical); oil fired convertible winter air conditioners; oil fired winter air conditioners (horizontal); save-way air system; gas fired gravity furnace, and floor furnace; gas or oil fired triple service hot water boiler; gas fired hot water or steam boiler, propeller type unit heater, duct furnace, blower type unit heaters, heavy duty heaters and gas conversion burners.

Bulletin SW-53. Pp. 12. Janitrol div., Surface Combustion Corp., Toledo 1, O.

INSTRUCTIONS FOR CARE AND ADJUSTING OF ROBERTSHAW MODEL 2EC SPACE HEATER THERMOSTAT. The space heater model described in this bulletin is an automatic control for temperature and pilot on modern space heaters. The model is a throttling type control offering safe lighting, safety shut-off and accessibility to adjustments. The bulletin describes installation, lighting of the heater, thermocouple care,

Precision Meter Repairs with Maximum Efficiency



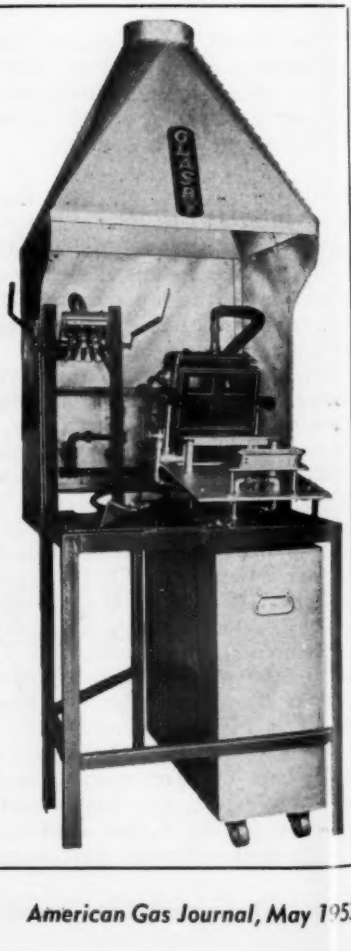
Minimum Repair Time Means Maximum Dollar Savings

← **Meter Front and Back Removing Machine**

This machine removes the front and back from gas meters in a fraction of the time previously required thus facilitating repair of diaphragms. Two models available—5 light meter and 10 light meter capacity. Both models are adjustable to most makes of meters and feature additional safety devices to protect the operator.

Meter Top and Valve Box Cover Removing Machine →

This machine facilitates the removal of meter tops and valve box covers to minimize the time-consuming problems of meter repair operation. Available in 5 light meter and 10 light meter sizes, both adjustable to most makes of meters. Both models feature devices for the safety of the operator.



Manufactured under Consolidated Edison Company of New York, Inc. Patent Number 2,342,045. Application development assistance by Public Service Electric and Gas Company of New Jersey.

THE J. P. GLASBY MFG. CO. INC.

BELLEVILLE 9, NEW JERSEY — *Manufacturers of Glasby Conversion Burners and Furnaces*

IRON SPONGE

for high efficiency gas purification at high pressures

Iron Sponge is your key to sulfur-free gas at minimum processing cost. Iron Sponge has high efficiency at low pressures or at today's high pressures and high temperatures. It absorbs *more* H_2S, gives long service between foulings, and is easily regenerated. Investigate it for your purification problem today!

CONNELLY *Inc.*

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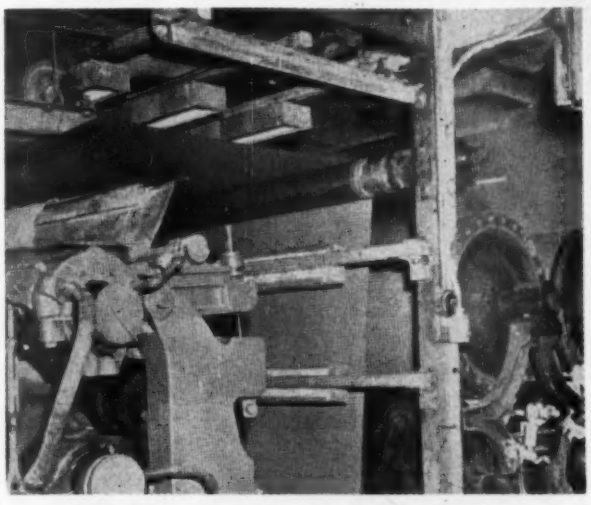
Elizabeth, N. J. • Los Angeles, California



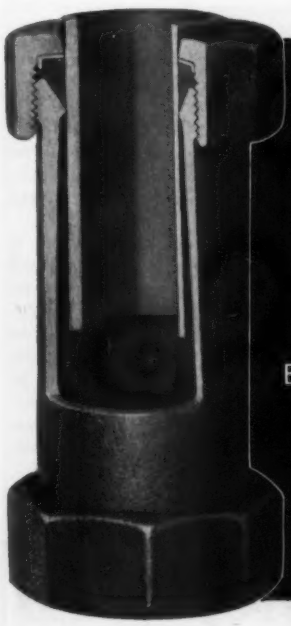
RED RAY BURNERS

Installed between Press and 1st Dryer
Heat applied to both sides of the web.

Simple, economical means of increasing drying capacity. Installations include automatic controls and safeguards.

Write for bulletins.

Red Ray Manufacturing Co., Inc.
455 W. 45th St., New York, N. Y.
Tel: Plaza 7-5174



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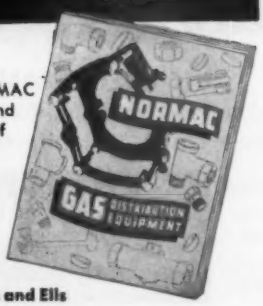
Couplings, Sleeves and Fittings . . .

- Save Time
- Handle Easily
- Give Dependable Service

Because They Offer...

- Maximum Deflection
- Ease of "Stabbing"
- Complete Confinement of Rubber



Today, write for your free copy of this NORMAC catalog . . . complete with illustrations and specifications on the entire Normac Line of Couplings, Sleeves and Fittings. It's a profitable step in the cost-cutting direction.

NORTON-McMURRAY MFG. CO.
122 South Michigan Ave., Chicago 3

Couplings • Meter Bars • Sleeves
Cocks • Ball Joint Clamps • Service Tees and Ells

M-SCOPE Pipe Finder

LIGHTWEIGHT MODEL

One Man Operation On Every Application

HIGHLY EFFICIENT

IMMEDIATE SHIPMENT

Free Demonstration and Operating Instructions

Catalog No. 25M On Request

JOSEPH G. POLLARD CO., INC.
Pipe Line Equipment
New Hyde Park **New York**

recalibration and cleaning of the main valve disc and seat.

In conjunction with the above bulletin the company has issued a folder-type promotional piece on the room temperature control. It mentions the increased saleability of the model as a result of the combining of the space heater thermostat with the thermo-electric pilot.

Bulletin RT-678 and Bulletin R.G. 1. Robertshaw-Fulton Controls Co., Thermostat div., Youngwood, Pa.

RECORDING THERMOMETER CONTROLLER. This bulletin on the recording thermometer controller with motor-driven set point index, describes the operation, features, and applications of this flexible temperature-time program controller. When used with external accessories the instrument enables the operator to change the time-temperature program in a few seconds. Heating or cooling rates and duration of holding periods are set by merely turning knobs. Components and specifications are included.

Bulletin Supplementary 501-S. Pp. 2. Minneapolis Honeywell Regulator Co., Brown Instruments Div., Wayne and Windrim Aves., Philadelphia 44.

FLOW METERS. Detailed information, including description, operation, construction and features, is presented in this bulletin about various type flow meters. Mounting methods and dimensions are discussed, together with principles of measurement, selecting the differential range, and descriptions of six meter types. Features of the flow meters, which are adequately described, include: sure-seal check floats, union-coupled U-bend, calibrated damping plug, precision float assembly and other improvements, and the pressure seal bearing. In color, the bulletin contains many illustrations.

Bulletin No. 460-1. Pp. 36. The Foxboro Co., Foxboro, Mass.

R-C ROTARY POSITIVE DISPLACEMENT METERS. This bulletin contains descriptive information, illustrations and performance characteristics of rotary positive displacement meters. An added feature of the bulletin is a selection chart showing in detail how to select proper size and type of meter for customer's requirements. Sample calculations are shown, as well as dimensions and possible arrangements. This amply illustrated, two-color bulletin offers information on design features, construction features and dimensions and capacities of standard meters.

Bulletin M-152. Pp. 18. Roots-Connersville Blower, Dresser Industries, Inc., Connersville, Ind.

FLUOR FIN-FAN AIR-COOLED HEAT EXCHANGERS. Illustrated, in two colors, this bulletin presents information on air-cooled heat exchangers for a variety of industrial cooling and condensing applications. The Fin-Fan heat exchangers described in the bulletin are of the forced draft type and are designed to cool liquids or gases at pressures up to 5,000 psi and temperatures as high as 1,500°F. Design features, construction, and installations are described.

Bulletin No. FF-FD-0.001. Pp. 12. The Fluor Corporation, Ltd., 2500 S. Atlantic Blvd., Los Angeles 22.

ELECTRONIK CONTROLLERS. This fully illustrated, two-color bulletin describes all types of electronik control instruments which are used to measure and control a multiplicity of process variables. Included are detailed specification and control action descriptions and ratings for both electric and pneumatic type controllers, and information about strip chart, circular chart, and circular scale controllers. The bulletin also presents engineering data on the Electr-o-line and Electr-o-pulse electric control relays.

Bulletin 1530. Pp. 56. Minneapolis-Honeywell Regulator Co., Brown Instrument div., Philadelphia 44.

ECLIPSE SUPER-MATIC SCOTCH STEAMBOILERPLANTS. The boiler units described in this bulletin are self-contained, automatic, burn gas, oil or both, and are available in a range of sizes, from 12 to 125 hp. Dimensions and Specifications are given in chart form, and information is presented on design features, operation and construction. The bulletin, in color, includes illustrations and diagrams.

Bulletin No. A-104. Pp. 10. Eclipse Fuel Engineering Co., Rockford, Ill.

RIGID METER BARS. This bulletin presents information on standard union, sleeve union and compression-type rigid meter bars. In addition to descriptions and photographs there are charts presented with each type of bar, indicating: size, inlet, outlet and swivel tappings.

Bulletin P-1. Pp. 8. Eclipse Fuel Engineering Co., Rockford, Ill.

Positive Protection!

from *Runaway Pressures!*

Fires!

NORWALK POSITIVE PRESSURE CUT OFF VALVES

- **Gives automatic shut off when excessive pressure arises or fire occurs!**
- **Easily reset to desired cut off pressure!**
- **No pressure loss!**
- **All parts external to gas flow!**
- **Quickly reset after operation!**
- **Sizes from 2" to 16"**

SEND FOR FULL PARTICULARS

NORWALK VALVE COMPANY

South Norwalk, Connecticut

Texas Eastern Prod. Names Curtis

Ben F. Curtis has been appointed chief geologist for Texas Eastern Production Corp., Houston, H. A. Hemphill, president, announced.

Mr. Curtis, who joined the company in 1951 as a district geologist, has recently served as division geologist in charge of the Shreveport division. A graduate of the University of Oklahoma, he was formerly employed by Skelly Oil Co., as assistant district geologist, and by Kerr-McGee Oil Industries. Mr. Curtis is a member of American Association of Petroleum Geologists, American Petroleum Institute, and Shreveport Geological Society.

modern landscape: modern equipment

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- Underground and aboveground storage tanks • Structural steel
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MANUFACTURERS AND FABRICATORS OF STEEL PRODUCTS

modern welding company

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OWENSBORO, KY., HOUSTON, TEX., NEWARK, O., ORLANDO, FLA.

STANDBY
for
NATURAL GAS

A packaged propane plant as designed, engineered and built by Draketown will provide a completely interchangeable fuel for your natural gas.

Ready in a matter of minutes, your Draketown Plant will click on automatically and take over all or part of your gas load. No delay—no appliance adjustments—no personnel problem.

During gas curtailment periods, "turn on" your Draketown Plant—you will find it pays dividends—it's good "Gas Insurance"!

*STANDBY
*PEAK SHAVING
*100% TOWN or PLANT SUPPLY

DRAKETOWN 2000

Your Assurance of a Good Job
Serving Utility and Industry for over Thirty Years

DRAKE & TOWNSEND
INCORPORATED
Consulting • Design • Engineering • Construction
11 WEST 42ND STREET • NEW YORK 36, N. Y.

BROOKLYN
BETTER BUILT
METERS

•Skilled Workmanship
•Costly Materials
•Constant Research

GUARANTEE

Long Life
Reduced Maintenance
Measurement Accuracy

REPAIRS • DIAPHRAGMS • PARTS

BROOKLYN
METER WORKS
3908 Fourth Avenue
BROOKLYN • 32 • NEW YORK

United Gas Tells Gulf South Story to Industry of Nation

(Continued from page 37)

ditions in the communities and areas served, it is felt that every citizen is benefited directly or indirectly.

That means natural gas companies will benefit, too. It is a philosophy of United Gas management, also, that the company is a "local business organization" in every town where it operates. Company employees are expected to take full part in local civic activities and to accept responsibilities for active demonstration of all qualities of good citizenship on a local basis.

Entire area emphasized

It is not the policy of United Gas to pin-point any specific city or community along the company system as the place where a particular industry might locate. The company sells the entire area. Once an organization becomes particularly interested in a given locality, United, if requested to do so, makes the personnel of its Industrial Development Department available to work with local chambers of commerce and other local groups, as well as industrial engineers, in efforts to locate new industries in the Gulf South states. Company representatives, upon request, also work with present industries along United's lines in assisting with expansion plans and other types of problems.

United's *Gulf South advertising* budget represents an important part of the company's total advertising expenditures. In addition, United Gas Pipe Line Company and Union Producing Company, subsidiaries of United Gas Corporation, run a regular schedule of public information type advertisements in approximately 400 daily and weekly newspapers in the five-state Gulf South area. The distribution divisions of United Gas Corporation have a separate, but co-ordinated, schedule of ads designed to promote the sale of gas appliances and increase natural gas sales at a local level. These, supplementary to the pipeline and producing companies' ads, appear in newspapers of communities where United has retail franchises.

A partnership venture

The thinking behind United's *Gulf South advertising program* was summed up by N. C. McGowen, president of the company.

"We like to think of this as a partnership venture," he said. "United Gas and the people of the Gulf South are partners. Together we are building a better life for the present generation and a brighter future for those to come."

A Complete
MAIN
TREATMENT
SERVICE

Prepare for Natural Gas

GPM PRODUCTS

"FLUSHALL"
— Dust Removal

"SOLVALL"
— Liquid Phase Gum

"SEALALL"
— Joint Sealing

"WETALL"
— Dust Laying

"FOGALL H"
— Hot Fogging

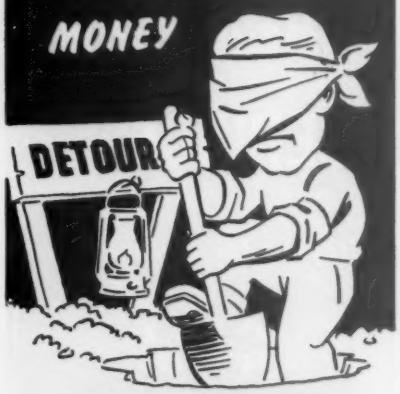
"FOGALL C"
— Cold Fogging

"IRON HYDROXIDE"
— Purification

Discuss your problems with our engineers

GAS PURIFYING
MATERIALS CO.
3-15 26th Ave.,
Long Island City, N. Y.

..BLIND DIGGING
wastes TIME and MONEY



FISHER
M-SCOPE
Pipe & Cable Finder

. . . . . locates pipe bends, dead ends, service stubs, and traces the exact course of buried pipe and cable lines up to 12 feet deep, with pinpoint accuracy. This inexpensive electronic device eliminates time and money wasted on exploratory digging.

FISHER M-SCOPES $149.50 UP DEL.

Send for FREE Booklet

16 page operating manual describes M-SCOPE and many of its profitable uses.
Write Dept. 7

Fisher Research Laboratory, Inc.
PALO ALTO · CALIFORNIA

Control of Dust in Distribution Systems

(Continued from page 42)

system would be the solution, but this does not completely solve the problem, as it does nothing about the dust formed by the corrosion down stream from the removal point.

However, this method does prevent the efficiency of transmission lines from becoming adversely affected by deposits of dust in the pipeline. It would also seem that the location of dust removers at city border stations would eliminate all dust in the distribution systems. This probably would be true if it were not for the fact that large quantities of dust have already settled in the distribution mains. This dust is picked up by heavy pulls and carried to district regulator stations and on to the customers' appliances. Therefore, it is necessary to install dust removers at district regulator stations and often on customers' premises.

Dust removal equipment

There are several types of equipment in use today for dust removal. The principal types being: filters, liquid scrubbers, rotating vane type scrubbers, and cyclone or dry type scrubbers. The cyclone type or dry type dust collector, the oil bath type cleaner, and the rotating vane type scrubber may be used on transmission lines, at city border stations, at compressor stations, and at underground storages. The dry type of scrubber passes the dust-laden gas through cyclone tubes, with the dust being collected in the bottom of the scrubber, and the clean gas passing out through the outlet at the top. The oil bath type or liquid type of scrubber traps dust in an oil spray, and the oil spray is then removed from the gas by either an external or internal mist extractor. The rotating vane type scrubber passes the dust-laden gas through a series of rotating vanes which are driven by an electric motor; the vanes being wet with oil due to dipping into an oil bath as they rotate. The gas does not bubble through the oil.

Filters, oil bath type scrubbers, and cyclone or dry type are used at district regulator stations for the removal of dust which has already accumulated in distribution systems and many companies are now using service line filters and appliance and pilot filters at the customers' premises.

In the selection of a gas cleaner to solve an individual problem it is often best to consult with representatives of reputable manufacturers who can be very helpful in the selection of the proper equipment.

Problems in converted systems

The introduction of natural gas into those distribution systems which have formerly used manufactured gas brought up an entirely new problem of dust control. It has been necessary for the distributing companies to install scrubbers at their border stations to prevent the dry natural gas from bringing in dust to the distribution plants. The introduction of this dry gas into gas distribution systems, which had previously

1897 1953

PIPE STOPPERS OF ALL KINDS

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SAFETY GAS MAIN STOPPER COMPANY

523 Atlantic Ave.,
Brooklyn 17, N. Y.
Cable Address: GASTOPPER, N. Y.

SUPERIOR METERS

RESPECTED BY TWO GENERATIONS OF METER MEN

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ALL SIZES 5B TO 75C

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PARTS—REPAIRS DIAPHRAGMS

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OVER 1,000,000 SUPERIOR METERS ARE OUR BEST SALESMEN

SUPERIOR METER COMPANY, INC.
167 41st ST., BROOKLYN 32, N.Y.

carried wet manufactured gas, not only caused the joints of cast iron mains to dry out, but also dried out the tars, gums, and other deposits which had accumulated on the interior surfaces of the mains and services while manufactured gas was used.

Almost without exception in those cases where dry gas has been introduced into a system which has previously used manufactured gas, trouble has been encountered within the first few months after turning on the dry natural gas. First, there are dust complaints. Sometimes lines are plugged.

Next come the naphthalene stoppages, as the dry gas absorbs naphthalene from existing deposits and drops it out again at restrictions in the line.

What can be done to neutralize the drying out of the mains and the deposits in the mains, as well as the meter diaphragms?

First, the dry natural gas, before entering distribution system, should be scrubbed to prevent transmission pipeline dust from entering into the distribution system.

Experience has shown that in order to properly condition natural gas for use in distribution systems which have previously used manufactured gas, it is necessary to both humidify and oil fog all gas entering low and medium pressure systems from the natural gas tie-in lines. Experience has also shown that humidifying with steam or water sprays should be introduced into the gas stream ahead of the point where the oil fog is introduced. Some companies have had good results by starting their fogging operations approximately six weeks prior to the beginning of the conversion to natural gas, and continuing to oil fog during conversion and thereafter. The degree of oil fogging and humidifying must be sufficient on a continuous basis to hold down deposits in the distribution system. However, too much oil fogging can cause the oil to condense in regulators, controls, and pilots burners.

Experience has shown that the rate of oil fogging of approximately one to one and one-half gallons per million cubic feet is sufficient. Perhaps best results can be obtained by maintaining oil and moisture conditions in converted distribution systems similar to those prior to conversion.

Another method which has been used for combatting dust in distribution systems is by the injection of carboseal into the gas mains. Carboseal is a solvent for tars and gums, is non-corrosive, has a high boiling point and a low vapor pressure. To secure the best results carboseal should be injected at high points in mains.

Regardless of the type of gas or type of distribution system or the nature of the dust, each of us must recognize the fact that burners, pilots, pilot controls, and thermostats depend upon clean gas.

Therefore, it would seem that we are left no alternative other than to provide a clean merchantable gas to our customers. We cannot afford to harvest our grapes of wrath: loss in revenue—increased service calls—and poor customer relations, the result of providing unmerchantable product.

Adapted from a presentation to American Gas Association Distribution, Motor Vehicles and Corrosion Conference April 1953

Industrial
Commercial-Residential
Gas Burning Equipment

DEPENDABLE ENGINEERING SERVICE AND EQUIPMENT

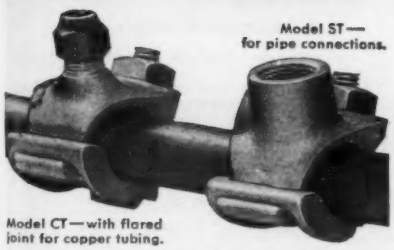
Serving the States of Southern Gas Association

A-T-M
Gas Equipment Co., Inc.
1014 South Gallatin Street
Jackson, Mississippi

Quick easy way

to make gas connections

FOR LAUNDRIES, DRYERS, REFRIGERATORS, AND OTHERS



Model ST—for pipe connections.

Model CT—with flared joint for copper tubing.

SKINNER-SEAL SADDLE TEE—for making gas and water connections. No pipe cutting or threading. Quick. Easy. Cuts costs. For gas refrigerators, home laundries, heaters, etc. Write for circular.

Approved by Underwriters' Laboratories, Inc.

M. B. SKINNER CO.
SOUTH BEND, 21, IND., U. S. A.

TAKE A TIP *from* A Little Dutch Boy

Who Stopped A Leak in a Dike With His Thumb To Save A Nation

There weren't enough thumbs over there recently, but

HEATH CONSULTANTS

can put enough fingers on your gas leaks and SAVE gas — SAVE $ $, Improve Public Relations.

Don't Delay Order a Heath Survey Today

HEATH
SURVEY CONSULTANTS, INC.
WELLESLEY, MASS. — RICHMOND, MICH.
"You Can't Sell Gas That Leaked Out"

GAS INDUSTRY CALENDAR

May

10-15 National restaurant convention and exposition, Navy Pier, Chicago.
11-13 Southern Gas Assn., Jung Hotel, New Orleans.
11-15 National Fire Protection Assn., Edgewater Beach Hotel, Chicago.
12-14 Pennsylvania Gas Association convention.
20-22 GAMA annual meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.
25-27 AGA production and chemical conference, Hotel New Yorker, New York.
28-29 The Natural Gas and Petroleum Association of Canada, London, Ontario.

June

14-18 Canadian Gas Association, Windsor Hotel, Montreal.
22-23 Michigan Gas Association, Grand Hotel, Mackinac Island.

August

24-26 Appalachian gas measurement short course, West Virginia University, Morgantown, W. Va.

September

9-11 PCGA, San Francisco.
10-11 30th Mid-West Gas School and Conference, Iowa State College, Ames, Iowa.
11 New Jersey Gas Association, Spring Lake, N. J.

October

6-7 Texas Mid-Continent Oil & Gas Association, Rice Hotel, Houston.
7-9 National Association of Corrosion Engineers, South Central region, Mayo Hotel, Tulsa.
19-23 National metal exposition, Public Auditorium, Cleveland.
26 AGA Board of Directors, St. Louis.
26-28 AGA annual convention, Kiel Auditorium, St. Louis.

November

9-13 National Hotel Exposition, Kingsbridge Armory, New York.
11-13 Wisconsin Utilities Association, Hotel Schroeder, Milwaukee, Wis.
17-20 AGA operating section, organization meetings, Hotel New Yorker, New York.
29-December 4 The American Society of Mechanical Engineers, Statler Hotel, New York.

March, 1954

25-26 New England Gas Association, Hotel Statler, Boston.

April, 1954

5-7 Southern Gas Association (Location to be announced)
12-14 AGA Sales Conference on Industrial and Commercial Gas (Location to be announced)
20-23 AGA Distribution, Motor Vehicles and Corrosion Conference, Mount Royal Hotel, Montreal, Canada.
26-28 Mid-West Regional Sales Conference, Edgewater Beach Hotel, Chicago.

May, 1954

9 (week) 35th Annual National Restaurant Convention and Exposition, Navy Pier, Chicago.
10-13 LPGA Annual Convention, Conrad Hilton Hotel, Chicago.
24-26 AGA Production and Chemical Conference, Wm. Penn Hotel, Pittsburgh.
27-28 Natural Gas and Petroleum Association of Canada, Prince Edward Hotel, Windsor, Ontario, Canada.

June, 1954

20-24 Canadian Gas Association, Banff Springs Hotel, Banff, Alberta, Canada.

PROFESSIONAL DIRECTORY

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CONSULTING ENGINEER • GAS AND PETROLEUM
GAS and OIL INVESTMENT • REPORTS and MANAGEMENT
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COAL AND COKE HANDLING
Complete engineering and installation service for coal and coke handling, screening, crushing, skip hoists and storage bins, including alterations to existing conveying and screening plants.
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